

Performance and Management Study of the Fire Department

CITY OF CHELSEA, MASSACHUSETTS



November 2012

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1. INTRODUCTION AND EXECUTIVE SUMMARY

The Matrix Consulting Group was retained by the City of Chelsea to conduct a Performance and Management Study of the Fire Department, which included an extensive review of management, staffing and other services. In reaching the concluding point of the study, the project team has assembled this report, which summarizes our findings, conclusions and recommendations, where appropriate. This study was conducted with cooperation and assistance of City of Chelsea personnel and the full support of the members of the Chelsea Fire Department.

In this study of the Chelsea Fire Department (CFD), the project team utilized a wide variety of data collection and analytical techniques. The project team conducted the following data collection and analytical activities:

- The project team began an intensive process of interviewing personnel in every Fire Department Division and collecting a wide variety of data designed to document workloads and service levels.
- Staff at every rank and in every function were interviewed either one on one or in small groups. All staff had the opportunity to provide input into the study through an anonymous online survey. This included personnel in operations, support, dispatch and from the City.
- Additionally, the project team interviewed representatives of the bargaining unit's executive board as part of this process.
- The project team also compared organizational structure, staffing levels, as well as certain operational and service delivery areas against other comparable fire departments.
- The Fire Department was compared to a series of best management practices developed by the Matrix Consulting Group. This process was used to identify issues on a wide range of topics in the Fire Department, as well as a process by which positive aspects of the Fire Department could be identified. These are included in as an appendix at the end of this report.

- The project team collected detailed workload statistics for the primary functional areas, including calls for service from the computer aided dispatch / records management system, budget documents and other statistical reports.

Throughout the performance audit process, the project team reviewed interim deliverables, including the findings and issues, with the project steering committee, consisting of members of CFD, City management and an elected official.

2. EXECUTIVE SUMMARY

The members of the Chelsea Fire Department were instrumental during the process for conducting this study. From making themselves available for interviews to responding to requests for data during the process, it was clear the agency has members with a great deal of pride in the organization and a desire to provide excellent fire and EMS services to the City of Chelsea. The project team has prepared a summary of the key findings, conclusions and recommendations to be found in this final report. While not inclusive of all the findings and recommendations, this least does illustrate key findings and those with cost impacts to the City and Department.

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Report Section / Page	Finding	Recommendation	Fiscal Impact	Responsible Parties	Recommended Priority
Page 15	The Department has a well defined mission statement but lacks vision and values statements.	Review the current mission statement to ensure that it fully describes the mission of the Chelsea Fire Department and develop clear vision and value statements as part of a strategic planning process.	None	Chief, Command Staff	High
Page 23	The organizational structure of the Fire Department should be changed and a new level of mid managers created, Battalion Chiefs, to manage shifts.	The City of Chelsea should convert the Fire Suppression Deputy Chiefs to Battalion Chief positions and move the Administrative Deputy Chief over Fire Suppression. The City should also consider adding an Administrative Assistant position to handle the duties previously performed by the Deputy Chief.	\$19,884	Chief, City Management and the City Council	Medium
Page 26	The Fire Department is operating without many key management documents in place, including: no long range planning, no performance measures, no annual work plan, little review time dedicated to assessing basic performance, etc.	The Fire Department, in conjunction with the City's administration and policy makers, should work to develop specific performance indicators for the Chelsea Fire Department.	None	Chief, City Management, Command Staff	High
Page 27	The Dispatch center is operating without key performance measure to ensure that fire personnel are dispatched to high priority calls in an expedient manner.	The Fire Department should work with the Chelsea E911 Department to establish call priorities by type so that only emergent calls (priority one) are used to measure performance.	None	Chief, Command Staff and Dispatch	High

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Report Section / Page	Finding	Recommendation	Fiscal Impact	Responsible Parties	Recommended Priority
Page 27	Connectivity should be ensured between apparatus and the CAD system.	Take steps to ensure that connectivity is not interrupted or policies changed to provide needed response information.	None	Chief, Command Staff and Dispatch	High
Page 27	Use of IMC data to track personal performance.	Train shift commanders in the use of IMC data to track personal performance.	None	Chief, Command Staff and IT	Medium
Page 27	The current collective bargaining agreement allows vacations to be granted which brings the department into a minimum staffing level, which leads to overtime if there is a vacancy on a shift or an unforeseen vacancy such as sick time occurs.	Consider reducing the number of shift personnel allowed to take vacation per group to four (4) to ensure one unscheduled absence can occur prior to overtime being required.	None	Chief, City Management, Union	High
Page 28	The updating of Department policies and procedures is not timely.	Appoint a policy review committee responsible for annually updating policies and procedures.	None	Chief, Command Staff	Medium
Page 28	Inclusion of mid managers in the union, IAFF Local 937 impacts their effectiveness as managers in the Department.	Negotiate with Fire Department managers and IAFF Local 937 to separate managers from the line employee group covering Firefighters, Engineers and Captains and create a separate mid manager collective bargaining group.	None	City Council, City Manager, Deputy Chiefs / Battalion Chiefs and IAFF Local 937	High

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Report Section / Page	Finding	Recommendation	Fiscal Impact	Responsible Parties	Recommended Priority
Page 34	The Chelsea Fire Department is currently not training with their first-due mutual aid partners	The Department should conduct multi-company operations training with their first-due mutual aid partners at least once annually.	None if conducted on duty. Approximately \$13,440 in overtime costs if conducted off duty at 4 hours per company.	Chief, Command Staff, Training Captain	High
Page 34	The Fire Department does not have performance measures in place for Fire Suppression during skills training.	The Fire Department should develop performance measures for skills training to ensure personnel can display proficiency within established performance requirements.	None	Chief, Command Staff, Training Captain	High
Page 34	Training certifications are not in place.	The Department should require that all personnel conducting training are certified as instructors	None	Chief, Command Staff, Training Captain	High
Page 35	The Fire Department is not conducting company evolutions (hands on simulated fire ground drills) on a regular basis.	The Department should identify an appropriate location for conducting evolutions and drills. These evolutions should be conducted quarterly to ensure personnel maintain proficiency in their required skills.	None	Chief, Command Staff, Training Officer, Company Officers	Medium

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Report Section / Page	Finding	Recommendation	Fiscal Impact	Responsible Parties	Recommended Priority
Page 35	The Department lacks a formalized training plan for ongoing and career development training.	The Department should develop a process for conducting an annual needs assessment to determine the training needs of the agency. Shift Commanders should be an integral part of this planning process.	The Department should begin budgeting \$250 annually per position to cover registration costs associated with attending identified training courses.	Chief, Command Staff, Training Officer, Company Officers.	High
Page 46	The Department has not conducted a full risk assessment of the community to clearly document risks by occupancy type.	Conduct a full risk assessment of the community to identify the risks faced along with an assessment of the likelihood of an emergency to occur.	None	Chief, Command Staff, Fire Prevention	High
Page 47	The Fire Department is operating without key performance measures for turnout and travel time to emergency calls	The City should formally adopt service level objectives. While targets should be locally determined, the project team believes the City should adopt a one-minute dispatch processing time and a one-minute thirty-second reflex time for 90% of emergency calls. Travel time targets should be established at 4 minutes 90% of the time.	None	Chief, Command Staff, Company Officers	Medium

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Report Section / Page	Finding	Recommendation	Fiscal Impact	Responsible Parties	Recommended Priority
Page 50	The agency is unable to deploy an effective response force to the typical risks facing the community without the utilization of mutual aid.	Consider adjustments to unit staffing (of 4 persons on engine companies and 3 on truck companies) in Chelsea only in the context of regional service capabilities and implementation of EMD priority response.	Further evaluation of regional response capabilities is required because, If adopted, this would cost \$966,438 per year in salaries and benefits.	Chief, City Management, Union	High
Page 51	The agency is not fully utilizing Emergency Medical Dispatch to prioritize and develop a tiered response for emergency medical calls resulting in Engine 2 exceeding response thresholds.	Continue to develop the EMD procedures and implement a tiered EMS response system where CFD units only respond to high priority EMS calls for service.	None Potential costs savings from not having to add units or construct additional facilities.	Chief, Command Staff, City Management, Cataldo Ambulance	Highest
Page 52	The condition of the current fire stations is in need of professional evaluation to develop a long-term strategy for their continued use.	The City should seek to have a professional condition assessment performed by a competent engineering firm which can assess structural, roofing, mechanical / electrical systems. The purpose of this assessment should be to develop a formal long-term plan for renovation or replacement of fire facilities.	\$50,000	Chief, City Management	High

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Report Section / Page	Finding	Recommendation	Fiscal Impact	Responsible Parties	Recommended Priority
Page 53	The amount of space available for fire prevention is inadequate.	The Fire Department and the City should seek alternative space for fire prevention including co-location with other development services functions.	None, depending on alternative space availability in City Hall.	City Manager and Chief	Medium
Page 54	The Deputy Chief of Fire Prevention is currently performing review and quality assurance of incident reports.	The Fire Department should assign the responsibility for reviewing reports for quality assurance and accuracy to the shift commanders on each shift. This will allow the Prevention Deputy Chief to focus on critical fire prevention needs of the community.	None	Chief, Command Staff	Medium

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Report Section / Page	Finding	Recommendation	Fiscal Impact	Responsible Parties	Recommended Priority
Page 58	There is currently little structure to the commercial inspection or pre-fire planning process.	<p>Formalize and schedule company inspections on a regular basis.</p> <p>Develop a risk classification for commercial occupancies and pre-fire plan occupancies based on risk.</p> <p>Recommendation: Require personnel responsible for conducting commercial occupancy inspections to obtain the appropriate certifications.</p> <p>Consider establishing a self-inspection program for small, B-type occupancies.</p>	\$2,500	Chief, Command Staff, Fire Prevention Lieutenant	Medium
Page 62	Opportunities exist to improve response to hazardous materials incidents.	Improve training of CFD personnel to move the agency to the operations level of responding to hazardous materials incidents. Consider training a minimum number of personnel, including the hazardous materials Captain to the technician level to ensure hazardous materials incidents are responded to appropriately.	\$5,000	Chief, Training Captain	Medium

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Page 63	The Department needs to maintain its internal apparatus and equipment maintenance capabilities.	Maintain its dedicated mechanic position. However, share heavy equipment repair workloads.	None	City	High
Page 64	Opportunities exist for improving emergency response to the waterfront areas	Consider working with your mutual aid partners and Chelsea PD to develop a regional response plan for dealing with emergencies along the waterways.	None	Chief, City Management	Medium
Page 65	The cost to homeowners and businesses for Fire Department required details has increase dramatically in the past five years.	<p>The Department should review the current policy of requiring details to ensure that they only occur when an immediate threat to life or threat of significant property loss exists.</p> <p>The Department should fully explain to homeowners and businesses when the detail will begin, corrective actions required and cost immediately upon determination that a detail is required.</p>	None	Chief, Command Staff, Fire Prevention Personnel	High

2. ORGANIZATIONAL STRUCTURE AND MANAGEMENT SYSTEMS

This first analytical chapter of the report focuses on key organizational structure and management system issues facing the Fire Department.

1. THE FIRE DEPARTMENT FACES A NUMBER OF ISSUES AND OPPORTUNITIES RELATED TO ORGANIZATIONAL STRUCTURE AND MANAGEMENT SYSTEMS.

The Matrix Consulting Group applied a series of “best management practices” to each area of the Fire Department, which was reviewed with the project steering committee to determine areas in the Fire Department, which could benefit from improved practices.

The following paragraphs offer a summary of the key issues identified with Department Management Systems and the Organizational Structure. In Summary:

- There are no long range plans in place within the Fire Department.
- The Department does not periodically assess the balance between fire suppression capabilities and the fire risks in the community.
- The Fire Department does not operate under a set of performance measures against which management or operations can be assessed.
- While the management team has frequent informal meetings, there are no meetings focused on addressing goals and objectives of the agency.
- The shift commanders do not conduct regular meetings with their subordinates to discuss ongoing issues.
- There is no established schedule for review and updating of policies and procedures.
- There is no routine monitoring of basic performance measures such as unit reflex time (the time it takes to react to a newly dispatch alarm until the vehicle is

moving) or vehicle drive times (from the time a unit leaves the station until it arrives at the scene).

- While there are annual budget goals and accomplishments, there are no annual reports, annual work plans or other documents that can be used to proactively guide the Department.
- Visual observation of the City's fire stations indicates that a number of deficiencies exist and should be addressed. There is, at this time, no long-term plan for facility replacement or renovation included in the City's capital improvement plan.
- There is no formal plan apparatus replacement plan for scheduling the replacement of fire apparatus (vehicles) in advance. The apparatus are part of the City CIP process and subject to competitive prioritization.
- Its physical space and single mechanic challenge the Department's vehicle maintenance operations.
- There are no plans in place for long term replacement cycles for SCBA, turnout gear, etc.
- The Training function does little to provide daily / weekly guidance to company officers regarding on-shift training.
- Record keeping in many areas of the Department are manual. This includes all training files for Fire Department personnel.
- Personnel providing training in the Department (including company officers) are not required to meet NFPA requirements for training officer certification. Officers are also not required to possess Fire Officer 1 or 2 Certification.
- Personnel providing training are not required to provide lessons plans to the Training Captain for approval.
- Senior personnel, including the chief officers, are not expected to provide training as part of their responsibilities.
- The Department does not routinely conduct training drills using multiple companies (to simulate real fire-ground operating conditions).
- There are no expectations that training will be conducted at night, nor typically that training will be conducted on weekends.
- There are no periodic training needs assessments conducted.

- With the exception of EMS training, training is provided based on opportunities that arise – not based on an evaluation of where training may be required.

The points above represent the management and organizational issues identified by the project team regarding the Chelsea Fire Department. The following sections in the report address these issues.

2. KEY TO EVALUATING ANY ORGANIZATIONAL STRUCTURE IS THE NEED TO IDENTIFY CRITERIA FOR ASSESSMENT.

In order to evaluate the organizational structure of the Chelsea Fire Department, the project team first had to identify the criteria by which the organizational structure would be judged. The paragraphs, that follow, describe those criteria as well as describe what is meant by each of them:

- **Accountability and Responsibility is clearly identified:** The organization must be consistent with the concept that clear lines of authority and decision making exist to achieve excellence. Areas of responsibility are clearly delineated and points of accountability are readily identifiable.
- **Span of Control or Communication is Optimal:** Effective organizations are structured so that lines of communication are identifiable and where there are multiple reporting relationships, responsibility for communication and control are clearly identified and understood.
- **There are essential checks and balances in place where necessary:** Checks and balances are necessary in both clinical (EMS) and operational areas to ensure staff performance is reviewed against established performance measures.
- **Structure is based on task requirements and work flow as opposed to specialized skills of individual members:** There is a tendency in some organizations to organize work patterns around the specific passions or skills of individual members.
- **Similar titled positions have similar responsibilities and levels of accountability:** The organization should be structured such that decision making authority and the ability of decisions to impact the organization in a strategic way are all found at similar levels of the hierarchy.

- **Support functions are logically grouped and do not, through this grouping, create additional layers of oversight:** Organizational structures should group support functions together, separated from operations, only when the scale and scope of the operation requires it.

The section, that follows, provides our analysis of the current organizational structure and opportunities for improvement.

3. THE CHELSEA FIRE DEPARTMENT HAS A WELL DEFINED MISSION STATEMENT, BUT LACKS A VISION STATEMENT OR VALUES.

Having clear mission and vision statements provides members with the foundation of why the agency exists and where they are headed. While the development of these statements is important, they must be constantly communicated to ensure all personnel are operating from the same baseline information on what the purpose of the agency is so all members are working together to achieve the shared vision.

The Chelsea Fire Department has adopted the following Mission Statement:

“The Fire Department seeks to provide optimum protection to life and property for the citizens of Chelsea and others, as called upon, against ravages of fires, medical emergencies, hazardous incidents and other dangerous conditions. The traditional goals of the department are to prevent the fires from starting, to prevent the loss of life and property when fires start, to confine fire to the place where it started and to extinguish fires. CFD is comprised of the following four divisions: Fire Suppression (including mutual aid to adjacent communities), Emergency Medical Response, Fire Prevention and Hazardous Material Control.”

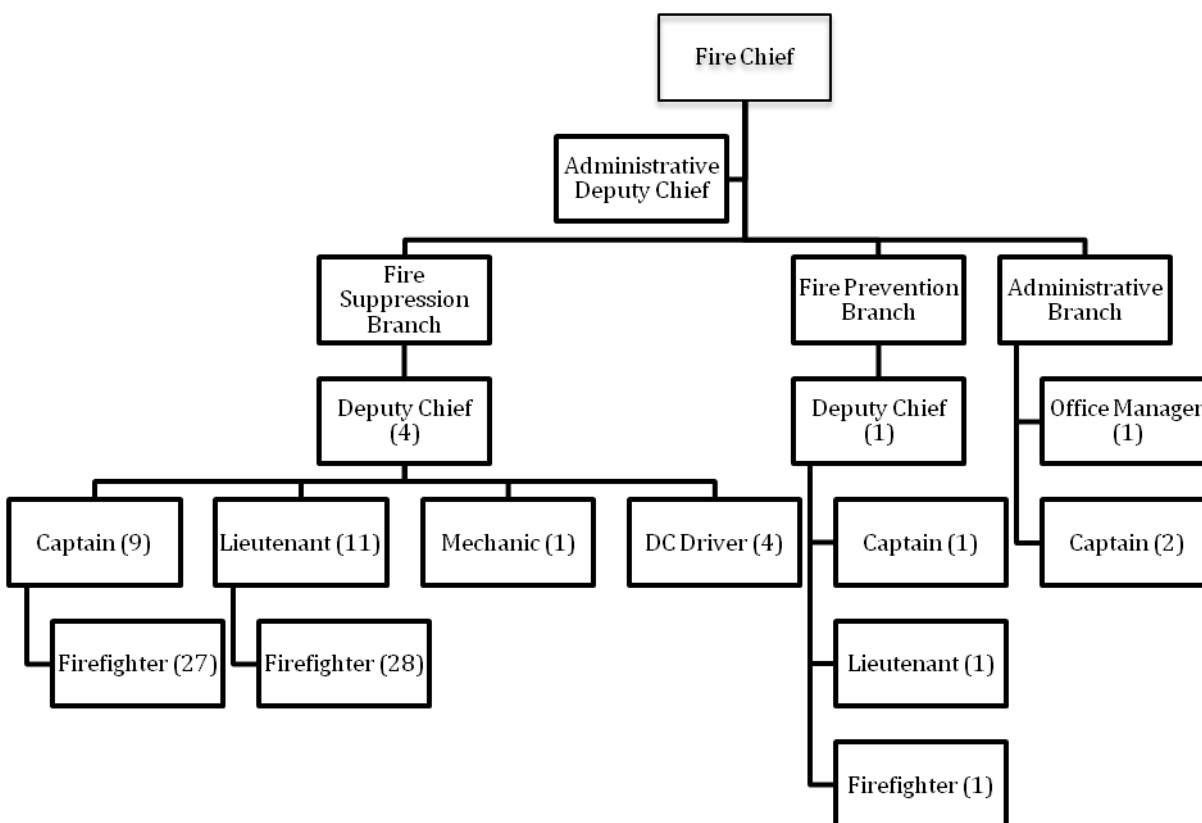
While the agency does have a Mission Statement to explain why they exist, there are several areas where the Mission Statement discusses elements that should be included in the Vision Statement (How the Mission is achieved). The Department currently has not adopted a Vision Statement to let members of the Fire Department know where they are headed and how they will achieve the Mission. The agency also does not have a Value Statement to fully explain the values the core values of the

organization and how they define the organization and guide the behavior of employees.

Recommendation: Review the current Mission Statement to ensure it fully describes the mission of the Chelsea Fire Department. Develop Clear Vision and value Statement for the Agency as part of the strategic planning process.

4. THE CURRENT ORGANIZATIONAL STRUCTURE CAN BE IMPROVED TO FULLY MEET THE CRITERIA FOR AN EFFECTIVE ORGANIZATION.

The current organization of the Chelsea Fire Department is along fairly typical lines, as shown, below:



The paragraphs that follow provide a summary of the project team's findings and conclusions regarding the current organizational structure of the Fire Department:

- The overall organizational structure of the Fire Department effectively represents the primary mission and the administrative necessities of the Department.
- The shift commanders report directly to the Chief, which is not appropriate to allow the Chief to become more administratively and strategically focused on the long-term needs of the organization.
- Functions are not logically grouped in the Department, such as training and hazardous materials being located in the administration branch.
- The use of Deputy Chief level officers to serve as shift commanders is unusual in agencies of this size.
- The lack of a Command Staff separate from the Collective Bargaining Process should be evaluated.

The following section considers the organizational options available to the Fire Department.

5. SEVERAL ORGANIZATIONAL ALTERNATIVES WERE ASSESSED IN AN EFFORT TO IDENTIFY ANY NEED FOR ORGANIZATIONAL CHANGE.

In order to evaluate the true effectiveness and efficiency of the current organizational structure, it is important to consider other alternatives and to compare the relative merits or issues with each relative to the current approach. Our review identified the most serious issues to be the lack of a senior command staff team outside the bargaining unit. Currently, only the Fire Chief is a non-bargaining unit member. This presents several challenges to the City and the Department:

- The Chief does not have a command team with whom to confer on employee or other significant management issues that might impact bargaining unit employees.
- There is no other person, beyond the Chief, who can participate in the disciplinary process who is not part of the same bargaining unit.

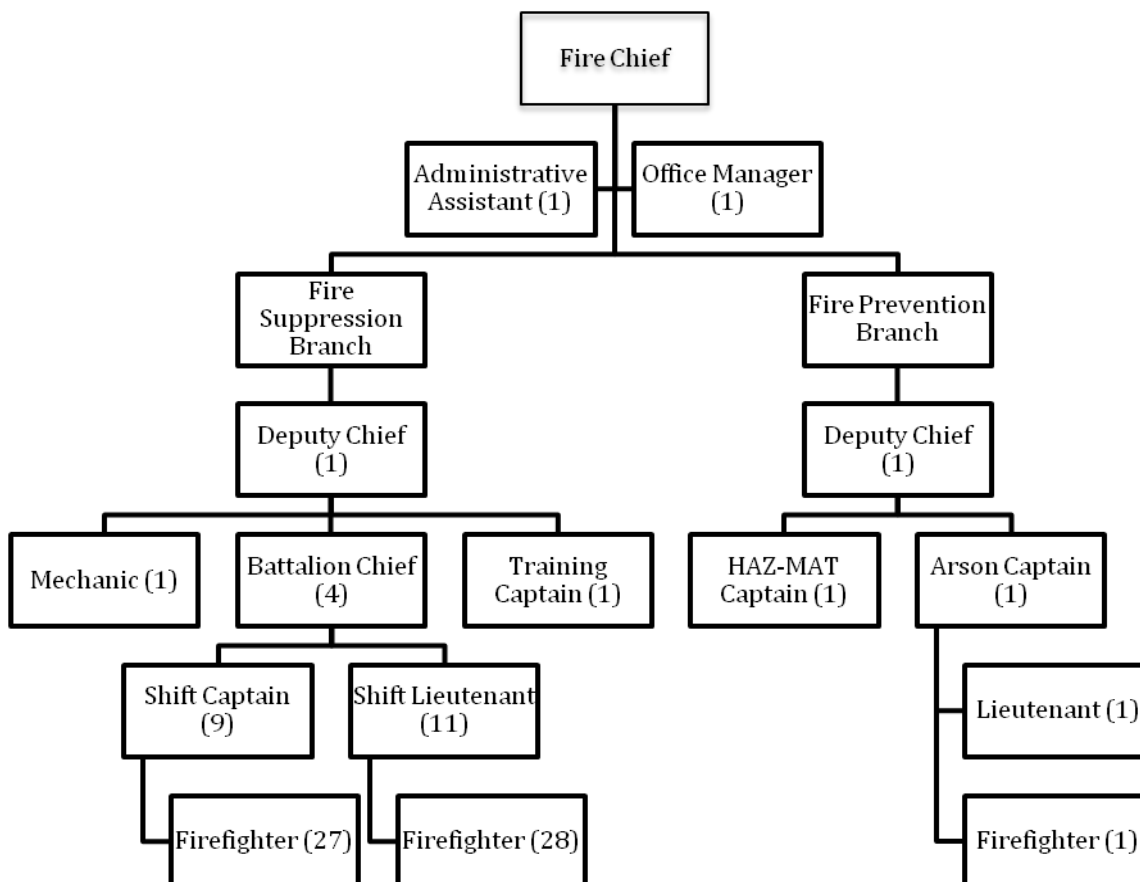
- When the Chief is away from the Department, there is no other employee who can be left in charge that is not a member of the bargaining unit – raising concerns regarding discipline and management.

The following options represent a brief description of the alternatives considered by the project team:

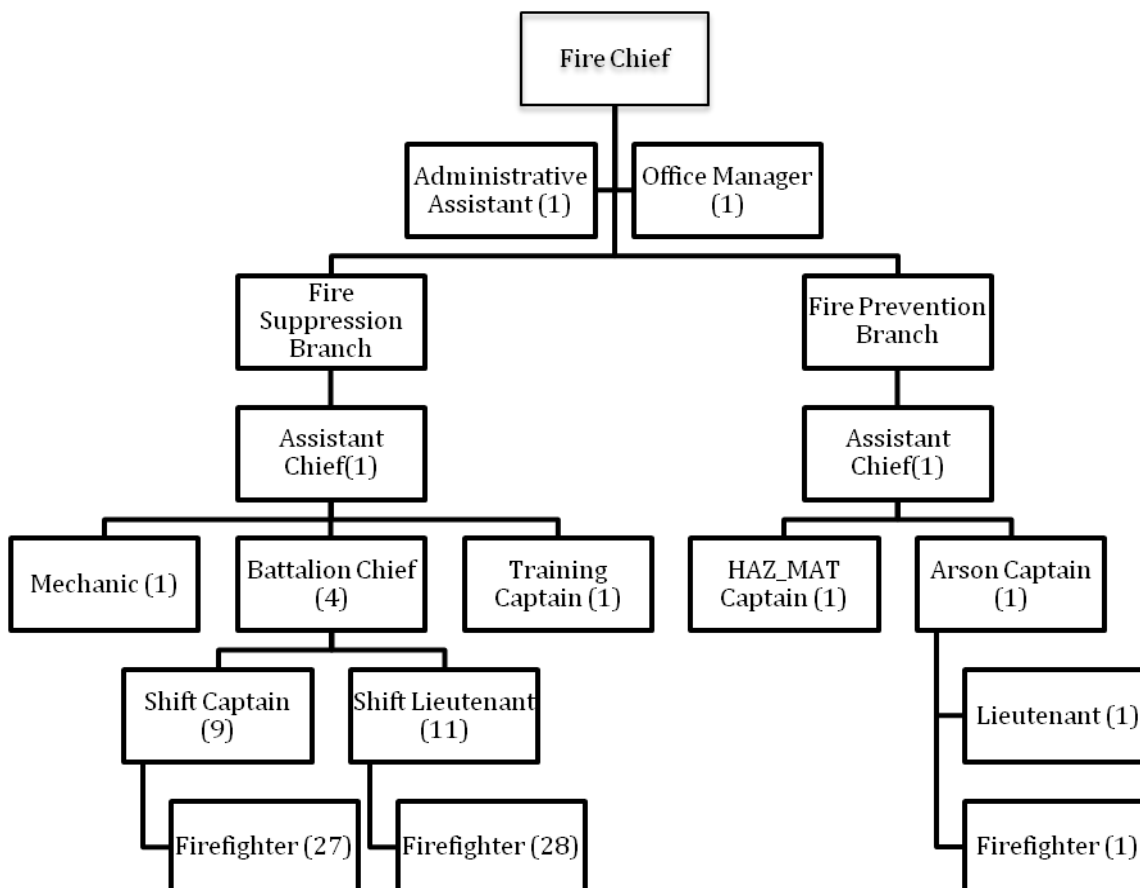
- **Option 1** – Convert the Administrative Deputy Chief position to a Deputy Chief of Fire Suppression, with the Shift Commanders being converted to Battalion Chiefs, which is commensurate with their current role and responsibilities, reporting to the Deputy Chief. Keep the Deputy Chief of Fire Prevention. Relocate the Training Captain to report to the Operations and the Hazardous Materials Captain to report to Fire Prevention. Add an additional civilian position to handle the largely administrative role of scheduling personnel to ensure compliance with the provisions of the collective bargaining agreement related to staffing levels. The two Deputy Chiefs would not be part of the union.
- **Option 2** – Eliminate the Deputy Chief classification entirely. Create two Assistant Chiefs, (Fire Suppression and Fire Prevention) who are not part of the union, with Battalion Chiefs serving as shift commanders, providing shift management. Relocate the Training Captain to report to the Operations and the Hazardous Materials Captain to report to Fire Prevention. Add an additional civilian position to handle the largely administrative role of scheduling personnel
- **Option 3** – Maintain the Deputy Chief positions on the shifts. Upgrade the Deputy Chiefs of Fire Prevention and Administration to the position of Assistant Chief, not in the Union, supervising the Fire Suppression and Fire Prevention Branches and reporting to the Chief. Relocate the Training Captain to report to the Operations and the Hazardous Materials Captain to report to Fire Prevention. Add an additional civilian position to handle the largely administrative role of scheduling personnel

Organization charts for these options are presented in the following exhibits:

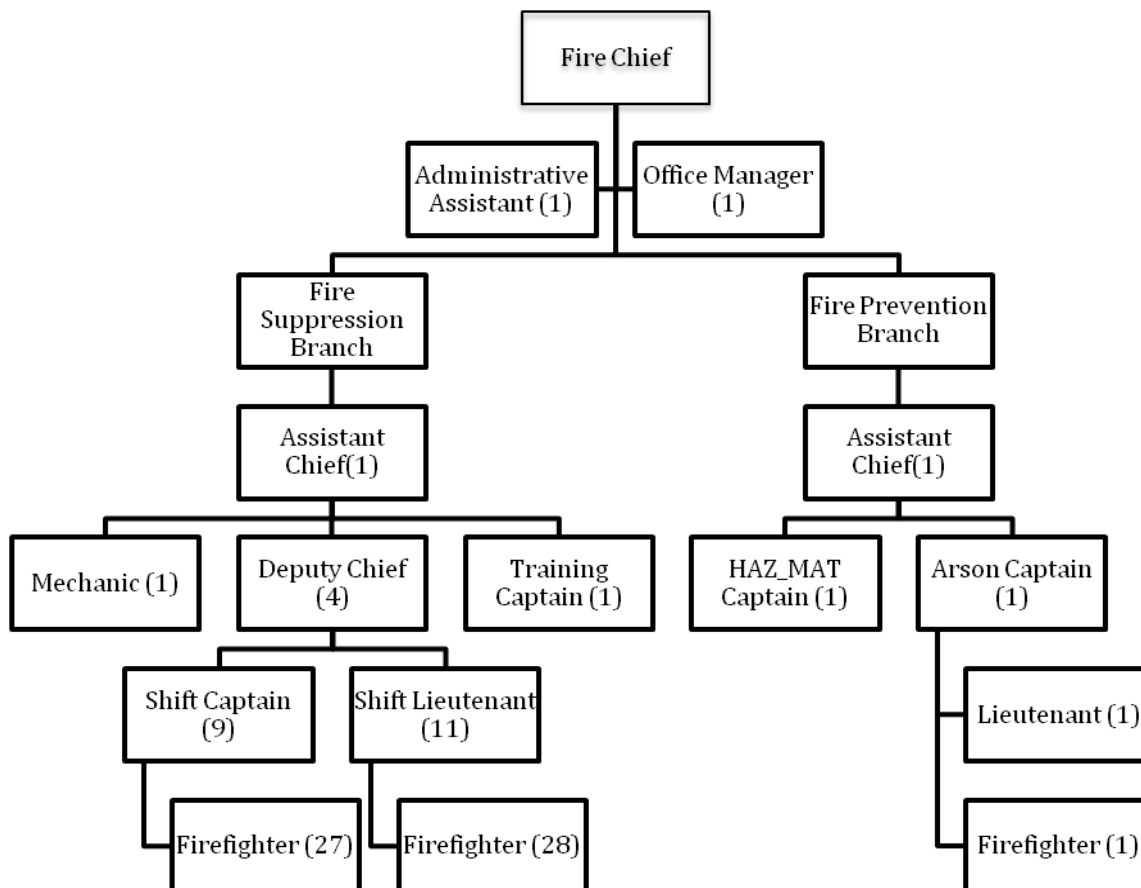
Option 1: Convert Admin DC to Fire Suppression DC



Option 2: Eliminate All Deputy Chief Positions
Create Assistant Chiefs and Battalion Chiefs



Option 3: Create Assistant Chief Positions / Eliminate Two Deputy Chief Positions



Each of these alternatives represents a significant departure from the current approach to managing the Chelsea Fire Department. Each would be accompanied by changes in either the number of positions and/or the classifications in the Fire Department. The project team recommends the adoption of Option 1, which can partially offset the cost of this improvement by reducing the rank of four (4) Deputy Chiefs, while resulting in enhanced management and control of the Department.

How the City of Chelsea and the Chelsea Fire Department choose to implement this change will be key to its success, particularly for any of the options that result in demotion of existing positions. The project team recommends the following:

- The current shift commanders should maintain their existing pay and benefits, but only have a title change.
- Upon the retirement or departure of a shift commander, newly promoted Battalion Chiefs will serve as shift commanders under the pay scale agreed upon between the City of Chelsea and the Chelsea Firefighters Local 937.
- The Administrative Deputy Chief should be moved to operations after a civilian office assistant can be hired and trained to handle the scheduling duties.

6. THERE ARE POSITIVE IMPACTS AND CHALLENGES TO ANY ORGANIZATIONAL ALTERNATIVE CONSIDERED

The exhibit, below, provides a summary of the benefits and challenges posed by the three options described graphically in the previous section.

Option	Benefits	Challenges
Option 1: Convert Administrative Deputy Chief to Fire Suppression Deputy Chief, convert shift Deputy Chiefs to Battalion Chiefs, relocate the Training Captain and Haz-Mat Captain and add an administrative assistant.	<ul style="list-style-type: none">• Adds two senior command positions that are not in the union. Providing additional management capacity for the Department.• Improved departmental focus, through one commander supervising each functional branch of the Department.• Cost savings from converting Deputy Chiefs to Battalion Chiefs.• Shift Commanders have a title commensurate with their duties.	<ul style="list-style-type: none">• Requires re-alignment of four Deputy Chief positions to Battalion Chief level positions.• Additional expense of an Administrative Assistant.• Pressure from union on changing work conditions due to “demotion of Shift Commanders”.

Option	Benefits	Challenges
Option 2: Eliminate all Deputy Chiefs, create two Assistant Chief positions and four Battalion Chief Positions. Relocate the Training Captain and Haz-Mat Captain and add an administrative assistant.	<ul style="list-style-type: none"> • Adds two senior command positions that are not in the union. Providing additional management capacity for the Department. • Improved departmental focus, through one commander supervising each functional branch of the Department. • Cost savings through the elimination of four Deputy Chief positions. • Creates two positions that are not in the union. Provides additional management capacity in the Department. • Shift Commanders have a title commensurate with their duties. 	<ul style="list-style-type: none"> • Pressure from union on changing work conditions due to “demotion of Shift Commanders”. • Additional expense of an added Administrative Assistant. • Additional expense of upgrading two Deputy Chiefs to Assistant Chiefs.
Option 3: Create two Assistant Chief position, maintaining the Deputy Chief positions on shift. Relocate the Training Captain and Haz-Mat Captain and add an administrative assistant.	<ul style="list-style-type: none"> • Adds two senior command positions that are not in the union. Providing additional management capacity for the Department. • Improved departmental focus, through one commander supervising each functional branch of the Department. 	<ul style="list-style-type: none"> • No fiscal savings due to the upgrading of two Deputy Chiefs and addition of an Administrative Assistant. • Has the highest potential financial impact on the City.

The options, above, are certainly not the only options for changing the organizational structure of the Fire Department. However, these options are intended to either address an issue identified by the project team, or to represent an option that was identified as an issue within the Department. The table, that follows, shows the cost implications of each of the alternatives. For calculation purposes the Battalion Chief salaries are calculated at the mid-range of the current Captain and Deputy Chief average salaries. The Administrative Assistant position is calculated at \$36,000 and the Assistant Chief at the mid-range of the current Deputy Chief and Fire Chief salaries.

Option	Position Changes	Average Salary / Position	Benefits / Position	Total Impact
One				
-4	Deputy Chief	\$92,295	\$46,148	-\$553,770
4	Battalion Chief	\$86,609	\$43,305	\$519,654
1	Admin Assistant	\$36,000	\$18,000	\$54,000
One - Total				\$19,884
Two				
-6	Deputy Chief	\$92,295	\$46,148	-\$830,658
2	Assistant Chief	\$105,216	\$52,608	\$315,648
4	Battalion Chief	\$86,609	\$43,305	\$519,654
1	Admin Assistant	\$36,000	\$18,000	\$54,000
Two - Total				\$58,644
Three				
-2	Deputy Chief	\$92,295	\$46,148	-\$276,886
2	Assistant Chief	\$105,216	\$52,608	\$315,648
1	Admin Assistant	\$36,000	\$18,000	\$54,000
Three - Total				\$92,762

The exhibit shows that there is a wide range of operating cost impacts from the three alternatives – from moderate cost increases (Option 1) to significant cost increases (Option 3).

Recommendation: The City of Chelsea should convert the Fire Suppression Deputy Chiefs to Battalion Chief positions and move the Administrative Deputy Chief over Fire Suppression. The City should also consider adding an Administrative Assistant position to handle the duties previous performed by the Deputy Chief. This will cost an estimated \$19,884 per year.

7. MANAGEMENT SYSTEMS IN THE FIRE DEPARTMENT ARE VARIED WITH MANY NOT BASED ON DATA FOR DECISION MAKING AND ACCOUNTABILITY.

The taxpayers of Chelsea make a large financial investment into the operations of the Chelsea Fire Department. For this investment, the community expects to receive effective and efficient fire, rescue and specialty services. In order to assure the community that these funds are well spent and that operations are being managed

effectively, the Fire Department must have data-driven management systems in place to provide management insight into the following areas:

- Performance of personnel responding to emergencies.
- Training for fire and EMS skills.
- Use of leave (sick, vacation, etc.).
- Budgetary performance.
- Overtime utilization by cause.
- Fire / EMS “run” reports and billing documentation.

The Matrix Consulting Group found that the Department’s key management systems vary in their utility and in the level of utilization by the command staff. Our findings are summarized, below:

- Systems that provide for financial reporting are present and are under the control of the City. Systems are in place which enable the Department to monitor budgetary performance. These are linked to the City’s financial management systems. The project team found that the City and the Department reconcile performance against the budget in an on-going manner, enabling potential budgetary issues to be identified quickly.
- Systems are in place, which enable detailed tracking of the use of overtime, the use of leave, etc. – all key indicators on the utilization of personnel. The project team found that the City maintains detailed accounting of all overtime utilized by reason. This enables overtime to be billed, for example, to the Haz-Mat account rather than the general fund, when appropriate. The Fire Department does not proactively examine reasons for overtime and use of leave to determine if opportunities exist to improve the use of leave and reduce overtime costs. Best practices result in overtime expenditures equaling 10% or less of salary costs. With \$6,469,714 in FY 2011 and \$924,468, CFD has an overtime usage rate of 14.3%, which is above best practices.
- The current bargaining agreement allows a maximum of five (5) shift personnel to take vacation per group once the weekly schedule has been issued. This effectively puts the department at minimum staffing and any unscheduled leave (sick, injury, death in family etc.) will cause required overtime. This effectively makes maximum and minimum staffing equal, which will cause increased overtime usage. With (4) personnel allowed to take off there would be 1,460

tours available for leave. Based on the current tenure of staff, shift personnel would require 1,410 tours of scheduled leave is none was sold back to the City as is allowed by the CBA.

- There are no performance measures established for the Fire Department. The result of this is that there are no objective measure against which to evaluate the Department's operations, performance, etc. The lack of these targets can impact planning decisions related to staffing, training, equipment purchases, etc.
- The Department does not utilize available data to assess its own performance internally. The project team found that the dispatch process was not capturing key data elements. These data would enable the Department to assess its own time performance relevant to calls for service. While the project team was able to develop some baseline statistical information this cannot be reliably done given the issues found by the project team.
- There are no internally developed performance objectives for response, on-scene activities, etc. which are actively measured. Personnel are not held directly accountable for their individual performance.

The Fire Department command staff has focused on the oversight of key financial indicators, but not performance issues related to the agency. There are currently no performance measures focused on service delivery. The IMC records management system allows the analysis of performance data, but currently there is only one person in the agency that has had any training related to the extrapolation of data from the system.

Performance measures should be easily understood and easily calculated. Suggested performance measures for the Fire Departments have a range depending on local factors and range from baseline performance (minimum acceptable performance) to benchmark performance standards (best practices). The standards should include the following for priority one calls for service:

- 911 call processing time (call answered to call dispatched): 1 minute or less 90% of the time (benchmark); 1 minute 30 seconds or less 90% of the time (baseline).

- Emergency call reaction time (call dispatched to unit en-route): 1 minute or less 90% of the time (benchmark); 1 minute 30 seconds or less 90% of the time (baseline).
- First unit drive time to emergency calls (unit en-route to unit on-scene): 4 minutes or less, 90% of the time (benchmark); 5 minutes 12 seconds or less, 90% of the time (baseline).

Other communities will also identify on-scene performance indicators, or measures, which must be met in training. These may include:

- On-scene to charged line at the front door of a structure fire: three minutes or less 90% of the time.
- Water from hydrant to supply engine: two minutes or less 90% of the time.

The point of the performance measures is to identify the community's expectations in a quantifiable way, and to use the measurement of the Department's performance against these objectives to identify areas, which may need improvement or additional resources.

When you attempt to examine the performance of the Chelsea Fire Department against the above criteria there are several issues:

- First, in over 90% of the calls dispatched the time from dispatch to the unit going enroute to the call is not captured.
- Second, in over 90% of the calls dispatched the time the unit arrived on scene is not captured.
- Third, of the calls where the information is captured the reliability of the time stamp is in question.
- Fourth, all calls requiring a unit response are entered as priority one calls, regardless of the type of call.

Recommendation: The Fire Department, in conjunction with the City's administration and policy makers, should work to develop specific performance indicators for the Chelsea Fire Department. A starting point can be found in the Best Practices assessment, an Appendix to this report.

Recommendation: The Fire Department should work with the Chelsea E911 Department to establish call priorities by type so that only emergent calls (priority one) are used to measure performance.

Recommendation: The Fire Department should work to ensure the connectivity remains constant between computers in the apparatus and the CAD system to ensure times are captured properly. If this cannot be accomplished, policies should be revised requiring personnel to notify dispatch of enroute and arrival times.

Recommendation: Train several members, including shift commanders, in the use of IMC for data analysis to allow each commander the opportunity to proactively track the performance of their personnel.

Recommendation: Consider reducing the number of shift personnel allowed to take vacation per group to four (4) to ensure one unscheduled absence can occur prior to overtime being required.

8. POLICIES AND PROCEDURES IN THE FIRE DEPARTMENT ARE COMPREHENSIVE AND MEET MINIMUM REQUIREMENTS, BUT PROCESS FOR ENSURING TIMELY UPDATING CAN BE IMPROVED.

The Fire Department operates under the direction of a detailed set of policies and procedures, which provide guidance on the organizational structure, membership, roles and responsibilities, expected functions and training requirements. Critical policies examined by the project team appeared to be timely and in line with what is expected in a policy manual for a modern fire department.

In interviews with members of command staff it became clear that while several policies had been updated recently, there is no proactive schedule for the review and revision of policies in CFD. In order to ensure that policies remain timely and meet the needs of the Department and community, there should be an annual review of policies to determine if revisions are required.

The Fire Chief should appoint an internal committee designated to conduct annual reviews and develop recommended revisions to departmental policies and procedures.

Recommendation: Consider appointing a policy review committee responsible for the annual review and providing recommended revisions to departmental policies and procedures. This committee should meet quarterly to ensure the review of policies occurs on a set schedule.

9. A MANAGEMENT UNION SHOULD BE CREATED FOR ALL CHIEF OFFICERS EXCEPT FOR THE FIRE CHIEF.

Currently, all personnel in the Chelsea Fire Department are represented by IAFF Local 937 with the exception of the Fire Chief. This reflects historical and regional practices which have been changing in the fire service. This practice has a number of issues associated with it, including:

- Ability of managers to function effectively from a management perspective which may be different than a line perspective.
- Ability of managers to function effectively as supervisors to staff assigned to them.

Many fire departments have continued to have mid managers represented by a union or association but have created a different collective bargaining group and process to cover these staff. This approach has the advantages of addressing the issues raised about the Chief being the only member of the organization outside the collective bargaining agreement, while not taking away these employees' right to be represented.

Recommendation: Negotiate with Fire Department managers and IAFF Local 937 to separate managers from the line employee group covering Firefighters, Engineers and Captains and create a separate mid manager collective bargaining group.

10. ASSESSMENT OF THE TRAINING PROVIDED TO PERSONNEL SHOWS THAT A NUMBER OF IMPROVEMENT OPPORTUNITIES ARE AVAILABLE.

Firefighters operate in a complex, dangerous, and dynamic work environment. In 2011 there were 83 firefighter fatalities and between 2005 and 2009 there were an annual average of 2,148 serious injuries suffered by firefighters in the United States. Effective training is a critical component to prepare personnel to meet the challenges of the various situations and work environments in which they will operate. The delivery of safe and effective emergency services depends on having a well-trained response force.

The reason it is important to establish and maintain an effective training is for firefighter safety. Given the various risks and complexity of the service area Chelsea Fire Department responds to both officers and responding personnel must be trained appropriately. The City of Chelsea has a comprehensive plan, which plans for growth in the southern portion of the city along the waterfront, which will bring new growth and hazards to the community. This growth is anticipated to add to the commercial tax-base. This will result in increased service demands for fire personnel. As the city grows, there will likely be new hazards encountered by fire personnel, including homeland security and hazardous materials risks.

The absence of a comprehensive training program compromises the outcomes of emergency situations and places response personnel at increased risks of injury on emergency scenes. Failure to train also exposes the City of Chelsea to liability action by employees. Therefore, training must be viewed as a critical function of CFD.

A review of the training program shows that there are several major issues regarding the ways in which the Chelsea Fire Department provides training:

- The unpredictability and turnover in the Training Captain position is viewed as a concern by line staff and managers.
- There are no performance measures or standards for performance for training or for basic skills.
- There are no facilities for personnel to conduct single or multi-company evolutions and drills.
- Firefighters are required to be Firefighter I and II certified prior to being assigned to an apparatus, but no formal field training program is required prior to engaging in firefighting activities.
- There are not standards to be continually maintained by current employees.
- The company officers do not receive coordinated support for in-station training.
- There are few opportunities for multiple companies to train together in either scenario based exercises or on technical issues.
- There are no evolutions or drills conducted with immediate mutual aid partners to ensure effective performance on emergency scenes.
- There is little or no formal training provided for supervisors, managers or executive staff.
- Personnel are subject to emergency call during all classroom and training drills, disrupting the education process and resulting in disparity in the amount of training received by personnel.
- There is no structured career development in the Department.

The current program is dependent on the creativity, motivation and preparation of the training captain and shift commanders. The project team recommends that the Fire Department take a number of steps to address these issues. These steps should include the following:

- Maintain the Captain of Training Position, but consider having the Captain report to the Fire Suppression Chief as discussed earlier in this Chapter.
- Consider requiring a set time for personnel assigned to training to remain in the position, such as a 3-year appointment to this position to maintain continuity in this critical function.

- Consider removing this position from the bidding process, but rather have personnel apply to be Training Captain with the Fire Chief appointing the most qualified candidate.
- The Fire Department should adopt a series of minimum standards for new and incumbent employees. These minimum standards should be made part of the process by which new employees either pass or fail their probationary period. These standards should continue to serve as the nucleus for in-station and multi-company training. Recommended standards include the following:
 - Area familiarization.
 - Vehicle familiarization.
 - Use of SCBA system.
 - Incident command and safety.
 - Use of ropes.
 - Use of ladders.
 - Use of hoses and streams.
 - Medical equipment.
 - Use of other tools and equipment.
 - Ventilation.
 - Emergency vehicle driver training.

These standards require the company officer assigned to the new employee to mentor the person to ensure their understanding of the minimum requirements. In addition, each minimum standard has a test, which is administered to ensure their knowledge. This provides a formal methodology for assessing employee performance and enables the Fire Department and the City to make more informed decisions.

- Develop a calendar-based system to support the company officers in their delivery of the training program. This would consist of the development of a series of key topics with supporting materials. The key elements of the program are described, below:
 - The program would work by assigning a topic to a number (1-30).

- A notebook (hardcopy or virtual) would be provided to each station.
- Each topic would be covered when the date corresponds to its topic number.
- This would ensure consistency (each topic would be taught from the same set of materials – the “Chelsea way”).
- The list of topics can be as narrow or broad as the Department desires. It can remain the same or can be changed quarterly or annually. Example topics include the following:

••	Ventilation	••	Overhaul	••	SCBA
••	Construction	••	Salvage	••	Entry
••	Hoses	••	Ground Ladders	••	Pumping
••	Fire Streams	••	Incident Command	••	Safety
••	Communications	••	Sprinklers	••	Streets
••	EMS	••	Hydrants	••	Policies
- The training program should be developed in accordance with NFPA 1410 – “Standard for Training for Initial Emergency Scene Operations.” This is a standard, which focuses on scenario based minimum standards for a fire agency. This approach can easily be adopted to encompass both training as well as performance assessment for the line crews. A number of specific minimum skills are defined in the document. One example of the types of minimum standards set forth in NFPA 1410 follows:
 - Forward-lay a hose 300 feet from a hydrant using a single supply line.
 - Advance a pair of attack lines 150 feet each from the engine.
 - Charge the lines so that the primary attack line can pump and maintain 100 gpm. The secondary (backup) line should be able to pump and maintain a flow of 200 gpm.
 - This task should be completed by a 3-person engine company in less than three (3) minutes.

- Crews should be tested annually, at minimum, on their ability to meet these minimum qualifications. Those units that cannot meet these standards should be immediately scheduled for training supervised by the Training Captain.
- The Training Captain should also utilize the recommended standards from NFPA 1410 to develop and oversee multi-company training. This training should be accomplished on at least a quarterly basis for all units and strived for on an annual basis with first-due mutual aid companies. The Shift Commander on-duty should be involved in the exercises and full incident command practices should be utilized in all exercises involving any fire or rescue and all events with three or more units on-scene.
- All personnel from the rank of Lieutenant and above should be provided with specific training to enable them to better oversee operations. The project team recommends that the Fire Department adopt an approach recommended NFPA 1021 "Standard for Fire Officer Professional Qualifications." This standard sets forth requirements to achieve various classifications of Fire Officer 1 through Fire Officer 4. These are summarized, in the exhibit, which follows:

Fire Officer I (Lieutenant)	Fire Officer II (Captain)
<ul style="list-style-type: none"> • Firefighter II • Minimum standard for department. • Familiar with budget process. • Departmental operating procedures. • Fire prevention and education. • Cultural diversity. • Methods of supervision. • Group dynamics. • Rights of management and bargaining unit. • Contractual language. • Ethics. • Fire related ordinances. • Basic writing and organizational skills. 	<ul style="list-style-type: none"> • All from FO1 • Ability to evaluate member performance. • Human resource policies of the city. • Communicate orally and in writing. • Preparing a project or divisional budget. • Purchasing laws and regulations. • Working with the press. • Incident command, health and safety.
Fire Officer III (Shift Commander)	Fire Officer IV (Executive Staff)
<ul style="list-style-type: none"> • All from FO 1 and FO 2. • Ability to research and analyze data. • Working with the public outside the agency. • Develop and oversee large budgets. • Ability to evaluate construction for issues. 	<ul style="list-style-type: none"> • All from FO 1, FO 2 and FO 3. • Advanced training in personnel, administration, legal and other issues. • Advanced training in analysis and information management. • Training in long range planning and evaluation. • Major incident oversight. • Major incident planning.

The above exhibit is intended to show the sense of progression that is encouraged by this program. The Fire Department could either adopt the standard formally (by linking, for example, promotions to these various levels) or could design a program for new and existing officers.

The training program of the Fire Department should be enhanced to improve the consistency of training and to enhance the support of company officers. In addition, particular focus should be given to enhancing the training given to new employees and to management personnel. Specific steps that should be taken to enhance the delivery of management training include the following:

- Provide “grade appropriate” training to personnel in the Fire Department. Identify the training needs that are relevant to officers and provide this to them. Do not require officers who do not actively participate in line activities to spend time on line training.
- Bunker Hill Community College (BHCC) offers several courses focused on Fire Science at their Chelsea campus. The Training Captain should work with BHCC to determine if courses can be offered (whether online or in person) that will fit the shift schedules of CFD personnel to allow a convenient way for personnel to develop their professional skills.
- Consider joint training exercises for managers in the Fire, Police Emergency Management and other City departments. The focus should be on sharing training opportunities, which have broad applicability to management roles.

Recommendation: The Fire Department should identify an appropriate location to conduct classroom training to minimize the interruptions occurring during training sessions.

Recommendation: The Fire Department should require that all personnel conducting training courses be certified as instructors.

Recommendation: The Fire Department should develop a career development track, which outlines the courses that should be taken prior to or upon assuming leadership positions in the agency.

Recommendation: The Fire Department should develop performance measures for skills training to ensure personnel can display proficiency within established performance requirements.

Recommendation: The Department should endeavor to conduct multi-company operations training internally and with their first-due mutual aid partners.

Recommendation: The Department should develop a process for conducting an annual needs assessment to determine the training needs of the agency. Shift Commanders should be an integral part of this planning process.

Recommendation: The Department should identify an appropriate location for conducting evolutions and drills. These evolutions should be conducted quarterly to ensure personnel maintain proficiency in their required skills.

3. ASSESSMENT OF FIRE DEPARTMENT SUPPRESSION OPERATIONS

The primary focus of the Fire Department is to provide effective fire and EMS emergency response to the community, which is the typical focus of most fire departments in the United States. This function of departmental operation involves the majority of the resources of the Department.

1. THE CITY OF CHELSEA HAS NOT ADOPTED SERVICE LEVEL STANDARDS

The adoption of performance standards for fire and EMS response is a critical first step in the evaluation of fire, rescue, and EMS service levels and staffing alternatives. While there are national standards that can be used to evaluate fire and EMS service delivery, each community must identify the key risks and necessary level of protection it needs based on its own unique circumstances. Once these performance standards are established a community can assess its performance and determine if current resources support the desired level of service.

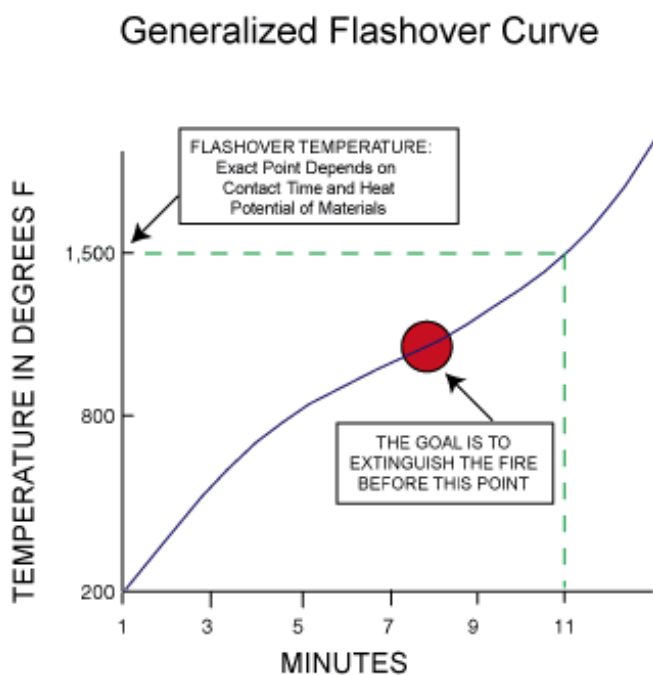
(1) Efforts to “Standardize” Service Level Objectives Are Based on Fire Growth Behavior and Research on Cardiac Arrest.

Nationwide, a great deal of effort and research has been put into developing performance objectives for the delivery of fire and EMS services. This effort is critical for agencies making decisions about deployment and location of emergency resources. The objectives promoted for fire/rescue and EMS have their basis in research that has been conducted into two critical issues:

- What is the critical point in a fire’s “life” for gaining control of the blaze while minimizing the impact on the structure of origin and on those structures around it?

- What is the impact of the passage of time on survivability for victims of cardiac arrest?

The chart, that follows, shows a typical “flashover” curve for interior structure fires. The point in time represented by the occurrence of “flashover” is critical because it defines when all of the contents of a room become involved in the fire. This is also the point at which a fire typically shifts from “room and contents” to a “structure” fire – involving a wider area of the building and posing a potential risk to the structures surrounding the original location of the fire.



Note that this chart depicts a fire from the moment of inception – not from the moment that a fire is detected or reported. This demonstrates the criticality of early detection and fast reporting as well as rapid dispatch of responding units. This also shows the critical need for a rapid (and sufficiently staffed) initial response – by quickly initiating the attack on a fire, “flashover” can be averted. The points, below, describe the major changes that occur at a fire when “flashover” occurs:

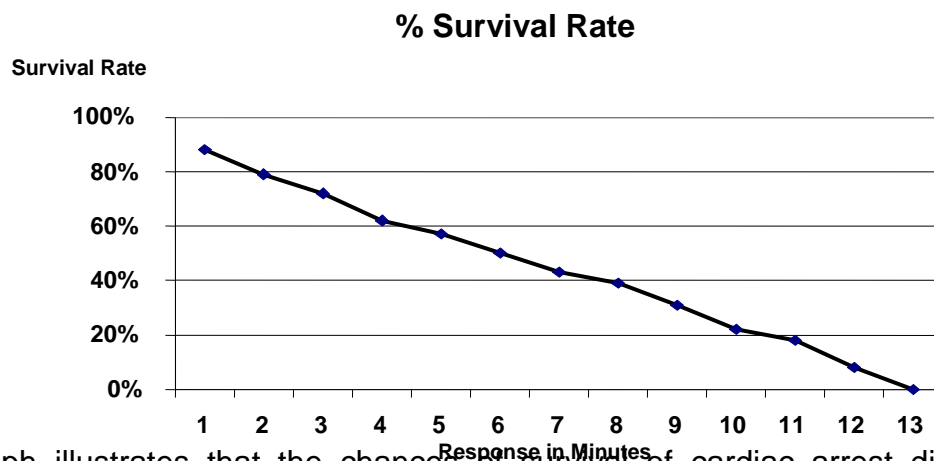
- It is the end of time for effective search and rescue in a room involved in the fire. It means that likely death of any person trapped in the room – either civilian or firefighter.
- After this point in a fire is reached, portable extinguishers can no longer have a successful impact on controlling the blaze. Only larger hand-lines will have enough water supply to affect a fire after this point.
- The fire has reached the end of the “growth” phase and has entered the fully developed phase. During this phase, every combustible object is subject to the full impact of the fire.
- This also signals the changeover from “contents” to “structure” fire. This is also the beginning of collapse danger for the structure. Structural collapse begins to become a major risk at this point and reaches the highest point during the decay stage of the fire (after the fire has been extinguished).

It should be noted that not every fire will reach flashover – and that not every fire will “wait” for the 8-minute mark to reach flashover. A quickly responding fire crew can do things to prevent or delay the occurrence of flashover. These options include:

- Application of a “fast attack” methodology.
- Venting the room to allow hot gases to escape before they can cause the ignition of other materials in the room.
- Not venting a room – under some circumstances this will actually stifle a fire and prevent flashover from occurring.

Each of these techniques requires the rapid response of appropriately trained fire suppression resources that can safely initiate these actions. In the absence of automatic fire suppression systems, access to interior fires can again be limited by a safety requirement related to staffing levels. OSHA and related industry standards require the presence of at least 2-firefighters on the exterior of a building before entry can be made to a structure in which the environment has been contaminated by a fire. In the absence of a threat to life demanding immediate rescue, interior fire suppression operations are limited to the extent a fire service delivery system can staff to assure a

minimum of 4-people actively involved in firefighting operations. The second issue to consider is the delivery of emergency medical services. One of the primary factors in the design of emergency medical systems is the ability to deliver basic CPR and defibrillation to the victims of cardiac arrest. The chart, that follows, demonstrates the survivability of cardiac patients as related to time from onset:



This graph illustrates that the chances of survival of cardiac arrest diminish approximately 10% for each minute that passes before the initiation of CPR and/or defibrillation. These dynamics are the result of extensive studies of the survivability of patients suffering from cardiac arrest. While the demand for services in EMS is wide ranging, the survival rates for full-arrests are often utilized as benchmarks for response time standards as they are more readily evaluated because of the ease in defining patient outcomes (a patient either survives or does not). This research results in the recommended objective of provision of basic life support within 4-minutes of notification and the provision of advanced life support within 8 minutes of notification. The goal is to provide BLS within 6 minutes of the onset of the incident (including detection, dispatch and travel time) and ALS within 10 minutes. This is often used as the foundation for a

two-tier system where fire resources function as first responders with additional (ALS) assistance provided by responding ambulance units and personnel.

Additional recent research is beginning to show the impact and efficacy of rapid deployment of automatic defibrillators to cardiac arrests. This research – conducted in King County (WA), Houston (TX) and as part of the OPALS study in Ontario, Canada – shows that the AED can be the largest single contributor to the successful outcome of a cardiac arrest – particularly when accompanied by early delivery of CPR. It is also important to note that these medical research efforts have been focused on a small fraction of the emergency responses handled by typical EMS systems – non-cardiac events make up the large majority of EMS and total system responses and this research does not attempt to address the need for such rapid (and expensive) intervention on these events.

The results of these research efforts have been utilized by communities and first responders, often on their own with no single reference, to develop local response time and other performance objectives. However, there are now three major sources of information to which responders and local policy makers can refer when determining the most appropriate response objectives for their community:

- The Insurance Services Office (ISO) provides basic information regarding distances between fire stations. However, this “objective” does little to recognize the unique nature of every community’s road network, population, calls for service, call density, etc.
- The National Fire Protection Association (NFPA) promulgated a documented entitled: “NFPA 1710: Objective for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.” This document (NFPA 1710) was published in 2001 and generated a great deal of dialogue and debate – which is still on-going.

- The Commission on Fire Accreditation International (CFAI) in its “Standards of Coverage” manual places the responsibility for identifying “appropriate” response objectives on the locality. These objectives should be developed following a comprehensive exercise in which the risks and hazards in the community are compared to the likelihood of their occurrence.

While each of these efforts provides a reference point for communities to follow, only NFPA 1710 and CFAI offer any specificity. It is important to note that the performance objectives (in terms of response times) provided in the NFPA 1710 document are derived from the basic research previously described. These include the following (all are taken from section 4.1.2.1.1 of NFPA 1710):

- One minute (60 seconds) for the processing of an incoming emergency phone call, including the completion of the dispatching of fire response units.
- “One minute (60 seconds) for turnout time.” This is also called reflex time, reaction time, “out-the-chute” time, etc. This is the time that elapses between dispatch and when the units are actively responding.
- “Four minutes (240 seconds) or less for the arrival of the first arriving engine company at a fire suppression incident and / or 8 minutes (480 seconds) or less for the deployment of a full first-alarm assignment at a fire suppression incident.”
- “Four minutes (240 seconds) or less for the arrival of a unit with first responder or higher level capability at an emergency medical incident.”
- “Eight minutes (480 seconds) or less for the arrival of an advanced life support unit at an emergency medical incident, where this service is provided by the fire department.”
- In section 4.1.2.1.2, NFPA 1710 goes on to state: “The fire department shall establish a performance objective of not less than 90 percent for the achievement of each response time objective specified in 4.1.2.1.1”

It is important to note the “and / or” found in the initial response objective statement. This indicates that a system would meet the intent of the standard if it can reasonably plan to deliver either the single unit, 4-minute travel time standard, the first alarm, 8-minute travel time standard, or both. It should also be noted that it is implied

that the total time allotted is additive with each successive event. For example, a system which arrived on-scene in 6-minutes or less 90% of the time (from time of dispatch) would be in compliance – even if the turnout time was longer than a minute (though that should clearly be improved).

It is also critical to note that these time objectives apply to emergency calls for service – there is nothing in NFPA 1710 (nor in any other objective) that suggests that communities cannot establish a differential response to calls for service determined to be non-emergency in nature. A second element of the NFPA 1710 performance objectives addresses unit and total response staffing. These objectives are described in NFPA 1710 as follows:

- Engine and truck companies should be staffed with a minimum of four personnel (sections 5.2.2.1.1 and 5.2.2.2).
- Section A.3.3.8 defines a company as either a single unit or multiple units, which operate together once they arrive on the fire ground.
- A total initial response is defined (in section 5.2.3.2.2) as having a total of 15 people (if an aerial is utilized) for 90% of calls. This is broken down as follows:

One (1) incident commander.

One (1) on the primary supply line and hydrant.

Four (4) to handle the primary and backup attack lines.

Two (2) operating in support of the attack lines, performing forcible entry.

Two (2) assigned to victim search and rescue.

Two (2) assigned to ventilation.

One (1) assigned to operate the aerial device.

Two (2) to establish an initial rapid intervention team.

- If an incident is determined to require additional resources, the fire department should have as an objective the ability to respond with:
- - Additional units as needed (through its own resources or via automatic and mutual aid).
 - Assignment of two (2) additional personnel to the rapid intervention team.
 - Assignment of one (1) as an incident safety officer.

It is interesting to note that the four person companies discussed in some areas of NFPA 1710 are not maintained in the description of primary tasks to be accomplished on the fire ground – recognition that the requirements of the response in the field are dynamic and do not fit neatly into size and shape of any particular response configuration. These objectives apply to the initial and follow-up response for reported structure fires. The document does not suggest that this response be mounted for all incidents.

The Commission on Fire Accreditation uses a population and density component to determine what the performance of the fire department should be to meet best practices and does not require a set number of personnel per piece of apparatus, but rather that an effective response force can be delivered to an emergency scene. For the purposes of CFAI, Chelsea would be considered an urban fire department. An urban setting is defined as a population of 30,000 and/or a population density of 2,000 or more people per square mile. CFAI also gives a community a range of acceptable performance standards from “Baseline”, minimally accepted performance to “Benchmark”, fully compliant with best practices. CFAI sets the following performance standards for an urban fire department:

Alarm Handling:	Baseline 90 seconds 90% of the time
	Benchmark 60 seconds 90% of the time

Turnout: Baseline 90 seconds 90% of the time
 Benchmark 60 seconds 90% of the time

Travel Time: Baseline 5 minutes 12 seconds 90% of the time
 Benchmark 4 minutes 90% of the time

Balance of First Alarm: Baseline 10 minutes 24 seconds 90% of the time
 Benchmark 8 minutes 90% of the time

CFAI also recognizes the importance of deploying an effective response force. They base this on the types of risk the agency is responding to and the number of personnel required to perform the critical fire ground tasks. The following table shows the effective response force by risk type:

Critical Task	Maximum Risk	High Risk	Moderate Risk	Low Risk
Attack Line	4	4	4	2
Search and Rescue	4	2	2	0
Ventilation	4	2	2	0
Backup Line	2	2	2	2
Rapid Intervention	2	2	0	0
Pump Operator	1	1	1	1
Water Supply	1*	1*	1*	1*
Support (Utilities)	1*	1*	1*	1*
Command	1	1	1	1
Safety Officer	1	1	1	1
Salvage/Overhaul	2	0	0**	0
Command Aid	1	1	0	0
Operations Chief	1	1	0	0
Logistics	1	0	0	0
Planning	1	0	0	0
Staging Officer	1	1	0	0
Rehabilitation	1	1	0	0
Division Supervisors	2	1	0	0
High-rise Evacuation	10	0	0	0
Stairwell Support	10	0	0	0
Total Personnel	50-51	21-22	14-15	8-9

It is essential that there exist a response plan in place to be able to deliver a sufficient number of personnel to the scene to accomplish the critical tasks. Structure fires are the most labor-intensive incidents and depending on weather conditions can require additional personnel to maintain an effective operation. The majority of risks in

the City of Chelsea will fall into the high and moderate categories as these risk categories describes risks from a typical single family home to unprotected multi-family housing. It is important to note that City of Chelsea also has a considerable number of occupancies that fall into the special risk category, such as those storing large quantities of hazardous materials and the proposed FBI building. The following table illustrates risk categories by occupancy type:

<p>Moderate</p> <ul style="list-style-type: none"> • Detached single family dwellings • Older multi-family dwellings easily reached with pre-connected attack lines • Railroad facilities • Mobile homes • Industrial or commercial occupancies under 10,000 sq. ft without high fire load • Aircraft on airport property • Loss of life or property limited to occupancy 	<p>High</p> <ul style="list-style-type: none"> • Concentrations of older multi-family dwellings • Multi-family dwellings that are more than two stories tall and require major hose deployment • Buildings with low occupant load, but with high concentrations of fuel load or hazardous materials • Aircraft off airport property • Mercantile facilities • Built-up areas with high concentrations of property with substantial risk of life loss, severe financial impact upon the community or the potential for unusual damage to the property or the environment
<p>Low</p> <ul style="list-style-type: none"> • Automobile fires • Carbon monoxide calls • Grass and low fuel type fires • Single patient EMS calls • Automobile accidents or industrial accidents • Tractor trailer fires • Storage sheds • Out buildings • Detached garages 	<p>Special Risk</p> <ul style="list-style-type: none"> • Apartment complexes over 25,000 sq. ft. • Government or infrastructure risks • Hospitals • Nursing Homes • Industrial complexes with fire flows of more than 3,500 gpm • Refineries and warehouses • Vacant/abandoned structures • All building where available water supply is less than projected fire flow

As the size of structure, complexity of the incident, or life safety risks increase so does the risk category. For this reason high occupancy and unprotected structures fall into the high-risk category. This will include assemblies, schools and the three story multi-family, “triple-deckers” prevalent in the area.

At current minimum daily staffing levels, CFD has 17 personnel available for immediate response to all emergencies. If fully staffed the daily workforce can be as high as a maximum of 22 personnel. As shown above this is an effective response force for the typical moderate risk found in Chelsea, but not for the common high-risk occupancies, nor the more complex risks in the community. Analysis of the typically daily staffing of CFD showed the department is staffed on average with 17.19 emergency response personnel daily, slightly above minimum staffing levels.

It is not fiscally possible or responsible to staff for the worst-case scenarios, which is why Chelsea, like most communities has mutual aid agreements in place with surrounding jurisdictions. However, the community should staff to be able to meet the common needs.

The fire department should conduct a full risk assessment of the community to identify the risks faced along with an assessment of the likelihood of an emergency to occur. This practical assessment of the community will allow CFD to work with the City of Chelsea to determine what the most appropriate staffing levels should be for the fire department on a daily basis.

Recommendation: Conduct a full risk assessment of the community to identify the risks faced along with an assessment of the likelihood of an emergency to occur.

Recommendation: Chelsea should staff engine companies with a minimum of four (4) personnel daily and ladder companies with a minimum of three (3) personnel daily only if regional approaches to establishing an effective response force through automatic aid do not occur to ensure an effective response force can be deployed to the typical risks found in the community.

(2) The City of Chelsea Should Formally Adopt and Actively Monitor Performance Related to Locally Defined Service Level Objectives.

The Chelsea Fire Department includes a number of goals in its annual budget, but none of these are related to the performance of emergency responders. The City and the Fire Department have not identified or formally adopted service level targets for initial response to emergency medical calls or fire incidents. While the project team believes the standards utilized in the following sections are appropriate for the City, service level targets should be adopted only after careful consideration of local risks and the financial implications of maintaining those levels.

The current performance of the dispatch center and CFD, based on available CAD records indicates the following:

Alarm Processing: 3:20 / 90% of the time

Turnout Time: 2:54 / 90% of the time

Travel Time: 2:12 / 90% of the time

As shown, only travel time is currently meeting recommended performance standards. It is important to note that personnel indicated that issues with connectivity of MDT's might be causing an increase in turnout time and decrease in travel time, as enroute times may not be accurate.

Recommendation: The City of Chelsea should formally adopt service level objectives. While targets should be locally determined, the project team believes the City should adopt a one-minute dispatch processing time and a one-minute thirty-second reflex time for 90% of emergency calls. Travel time targets should be established at 4 minutes 90% of the time.

(3) The Current Fire Station Network Provides Excellent Coverage of the City, but Units Exceed Acceptable Response Thresholds.

The next step for the project team was to assess the current fire station network.

As shown, the performance of the Chelsea FD related to travel times is well within the expected benchmark performance of four minutes 90% of the time. The data clearly indicates that the Fire Department is able to adequately cover the City, but there is a serious issue of response reliability. The issue is not one of station coverage, the issue is the number of calls per unit. In reviewing the number of calls responded to by each Chelsea Unit, the project team assessed the availability of the Fire Department in terms of their availability to cover the City.

The Chelsea Fire Department responded to 10,801 emergency calls for service in 2011. The following table shows the number of times each unit was dispatched to an emergency call. Please note that several call types will result in multiple units being dispatched, which is why the unit count is higher than the total number of calls.

CFD Unit Responses 2011		
Unit	Calls For Service	Percentage
Engine 2	4,269	39.5
Engine 3	2,589	24.0
Tower 1	2,411	22.3
Engine 1	2,136	19.8
Ladder 2	1,699	15.7
TOTAL	13,104	

As shown Engine 2 is by far responding to the most calls for service annually at 4,269 or 39.5% of the emergency calls for service. Overall the first due units had 13,104 emergency call responses. The number of responses by Engine 2 is an important figure as an industry benchmark for exceeding capacity of unit effectiveness is 3,500 calls for service annually, at which point an agency must make critical decisions regarding the ability to effectively provide services to the community. The following table is a system solution guide from the Commission on Fire Accreditation International (CFAI) showing a tiered approach of solutions based on calls for service thresholds.

THRESHOLD	POSSIBLE SOLUTIONS
Units within 90% of Threshold values: Unit/Station call loading <ul style="list-style-type: none"> Above 3,150 calls per year – single unit Above 7,900 calls per year – two units Above 12,600 calls per year – three units 	<ul style="list-style-type: none"> Change cover status/dynamic deployment Decrease first-due area Redeploy adjacent resources Reconfigure station resources Eliminate planned out of service time
Units at Threshold Values: Unit/Station call loading <ul style="list-style-type: none"> 3,500 calls per year – single unit 8,760 calls per year – two units 14,000 calls per year – three units 	<ul style="list-style-type: none"> Increase capacity of adjacent units Increase/decrease mutual aid Implement peak staffed units Redeploy resources to problem areas Relocate existing fire stations
Units over 110% of Threshold Values: Unit/Station call loading <ul style="list-style-type: none"> Above 3,850 calls per year – single unit Above 9,650 calls per year – two units Above 15,400 calls per year – three units 	<ul style="list-style-type: none"> Add new resources to station Add new resources to adjacent stations Add new station(s)

As shown above the only Chelsea FD unit with an issue regarding the total annual calls for service is Engine 2, which is 22% over the threshold value of 3,500 call for service per year. As shown in the table above the three options recommended by CFAI when units exceed 110% of threshold values are to add new resources to the station, add new resources to adjacent stations or add new station(s). The project team examined the issues related to the number of calls being responded to by Engine 2 and found that 2,778 or 65% of the calls responded to by Engine 2 were medical related calls.

Currently the Chelsea Fire Department responds to all medical calls regardless of the severity of the call. Recently the dispatch center implemented Emergency Medical

Dispatch (EMD) procedures utilizing Cataldo Ambulance Service, the City's EMS transport provider, to determine the priority of EMS calls. While the transition to EMD has not been smooth, it is a critical first step in developing a tiered EMS response system where fire department units are only dispatched on high priority (life threatening) calls for service. The project team recommends this as a first step in reducing the unit threshold levels and possibly delaying the need to add additional units or build additional stations.

Unit staffing needs to continue to be evaluated in a regional context. Because the magnitude of risk in Chelsea exceeds any reasonably affordable municipal approach it will always rely on neighboring fire departments for major events. The current approach to emergency response consistently results in one or more units typically being committed to a call for service, mostly EMS related. As a result, the Department should continue to evaluate improvements in mutual and automatic aid to ensure an appropriate response force can be deployed in a timely fashion before considering adjusting engine and trucking company staffing levels. The cost of increasing staffing to a minimum of four (4) personnel daily on engine companies and staffing ladder companies with a minimum of three (3) personnel daily would cost an estimated \$966,438 per year in salaries and benefits, which can be avoided if the improvements to EMD and regional response plans are implemented.

Recommendation: If the tiered EMS procedures do not reduce Engine 2 unit threshold values to 90% or 3,150 calls for service annually consider adding an EMS squad staffed with a minimum of two personnel daily. This option would require adding an additional 3 personnel per shift to ensure adequate coverage at an estimated cost of \$644,292 in additional salaries annually.

Recommendation: Consider adjustments to unit staffing in Chelsea only in the context of regional service capabilities.

Recommendation: Maintain the current fire station network in the City of Chelsea, but actively monitor calls for service data and consider adding a new station location, along the developing waterfront area of the City if the availability of first-due apparatus is less than 78%. If adopting a prioritized EMS response or adding an EMS squad is not implemented a new station staffed with an engine company is required to ensure adequate response to the area.

3. THE CITY'S FIRE STATIONS FACE MAJOR CHALLENGES IN TERMS OF THEIR CONDITION. THE CITY SHOULD RETAIN AN ENGINEERING FIRM TO CONDUCT A CONDITION ASSESSMENT.

The Matrix Consulting Group personnel toured each of the City's fire stations.

Our tour of the facilities revealed the following examples:

- Exterior walls with major visible cracks in brickwork and mortar, missing bricks, etc.
- Water penetration through roofs and walls.
- Aging windows and doors which do little to prevent the penetration of water and cold air.
- Aging mechanical and electrical systems.
- Limited storage space.
- Limited office spaces, etc.
- There is not an adequate facility for conducting fire training of any kind. The single "classroom" that the Department has, at headquarters, is actually the lobby for administration and fire prevention.
- There is no facility in which the Department can provide for training with hands-on skills without having to utilize space in a fire station or borrowed space.
- The headquarters has administrative and fire prevention staff located on the second floor with no accessibility for persons with disabilities.

While the City of Chelsea has received a grant to upgrade and fully restore the Mill Hill station at 883 Broadway, there has been no progress at the time of this report on those station improvements.

Recommendation: The City should seek to have a professional condition assessment performed by a competent engineering firm which can assess structural, roofing, mechanical / electrical systems. The purpose of this assessment should be to develop a formal long-term plan for renovation or replacement of fire facilities.

4. ASSESSMENT OF FIRE PREVENTION, PUBLIC EDUCATION AND OTHER SERVICES

This chapter focuses on the fire prevention, public education and other services of the Chelsea Fire Department. The first section summarizes the findings of the project team as they relate to these functions.

1. FIRE PREVENTION STAFF FACE MAJOR CHALLENGES IN THEIR CURRENT WORK SPACE

The Fire Prevention and related staff are currently housed on the second floor of the Main Fire Station. The following paragraphs document our key findings:

- The space is very cramped – with desks, file cabinets, plan storage and other assets all housed in one open space.
- There is no space upon which plans can be fully laid out flat to be reviewed.
- There is no meeting space that can be used by the Fire Department to meet with other City Departments, contractors or others.
- The storage spaces for plans, exacerbated by the lack of an electronic plans system, is almost non-existent in the current office spaces. The filing system is outdated and lacks the ability to quickly locate plans.
- Property files showing inspections, changes of use, permits, etc. are maintained in file cabinets taking up significant office space.
- There is limited space for movement in the office, making it difficult for personnel to interact, search for plans, etc.

Recommendation: The Fire Department, in conjunction with the City, should seek to identify an alternative space for Fire Prevention more appropriate to their needs. This would include, at minimum, space for individual work-stations (large enough to review plans), storage space separate from the office areas, and a conference room space. Many communities have found that co-locating fire prevention with the building department improves communication and service delivery during the plan review process.

2. THE DEPUTY CHIEF OF FIRE PREVENTION IS REQUIRED TO PERFORM TASKS UNRELATED TO THE FIRE PREVENTION FUNCTION.

The Deputy Chief of Fire Prevention is currently responsible for reviewing and conducting quality assurance on emergency response incident reports. As stated earlier the operations personnel are responding to over 10,000 calls for service annually. This job function greatly impacts the ability of this Deputy Chief to be effective in overseeing and performing critical fire prevention activities in the City. This process also in effect has the Prevention Deputy Chief evaluating the quality of work performed by personnel under the responsibility of the Operations Deputy Chiefs.

The Department should reassign the responsibility for reviewing and conducting quality assurance checks on incident reports to the respective Shift Commanders on each shift. This will ensure work quality is being evaluated within the chain of command of effected employees and allow appropriate corrective action and training to be recommended if personnel are not generating a quality work product.

Recommendation: The Chelsea Fire Department should assign the responsibility for reviewing reports for quality assurance and accuracy to the shift commanders on each shift. This will allow the Prevention Deputy Chief to focus on critical fire prevention needs of the community.

3. OPPORTUNITIES SHOULD BE CONSIDERED FOR IMPROVING COMMERCIAL OCCUPANCY INSPECTIONS

The Fire Department has a lieutenant assigned to conduct inspections for the agency. The following paragraphs summarize the current situation:

- Annual inspections are conducted on combustible storage facilities.
- Annual inspections are conducted on occupancies with a liquor license.
- Annual inspections are conducted on restaurants with hood systems.

- Annual inspections are conducted on hospitals, nursing homes, daycares and schools.
- There is no set inspection schedule for other commercial occupancies in the City of Chelsea.
- Sprinkled occupancies are not inspected, but rather the department relies on sprinkler companies submitting an annual inspection certificate.
- There is no formal training provided for personnel assigned to the Fire Prevention Division.

Occupancy inspections are used to locate and mitigate potential fire hazards to reduce or prevent the occurrence of fire in a community. Different types of occupancies pose different levels of fire risk and require different inspection schedules. These inspections ensure compliance with applicable codes and verify activities are being conducted in a safe manner.

Fire departments can use inspection time as an opportunity to educate the occupants while mitigating hazards that exist in the buildings. Inspections of commercial, industrial, places of assembly, and facilities open to the public are designed to identify and eliminate potential fire hazards before an emergency occurs.

NFPA standards 72, 80 and 101 recommend the frequency of fire safety inspection, which vary by the type of occupancy. Generally, inspections are classified by the degree of hazard with higher hazards being inspected more frequently.

The following table illustrates the NFPA recommended frequency of inspection by hazard class and facility type:

Hazard	Example Facilities	Inspection
Low	Small stores, general offices, medical offices, non-flammable storage, and apartment common areas.	Annual
Moderate	Gas stations, stores larger than 12,000 square feet, restaurants, schools, hospitals, manufacturing facilities, small industrial uses, auto repair shops, storage of moderate flammables or hazardous materials.	Semi-annual
High	Nursing homes, large users of flammable liquids or hazardous materials, bulk flammable liquid storage facilities, facilities classified to handle “extremely hazardous substances.”	Quarterly

During interviews with Chelsea Fire Department personnel it became clear that while CFD recognizes the importance of conducting fire and life safety inspections on a regular basis many occupancies in the City are not being inspected.

The current occupancy inspection program does not have a schedule for businesses outside those special risk occupancies identified above. According to the Lieutenant in Fire Prevention, the majority of businesses are not inspected and CFD has not prioritized their inspection schedule based on occupancy type or risk. The backlog in inspections is largely due to the mandated work such as Real Estate Inspections, the use of this position as translator, and immediate inspection needs associated with code violations witnessed by responding emergency personnel. Another issue is the firefighter assigned to the Prevention Division spends the majority of his time scheduling details and issuing permits.

The Department should develop a goal to inspect higher risk occupancies and all occupancies with a sprinkler or detection system annually. The Fire Prevention Officer and Fire Planner both indicated that developing a formal inspection schedule is a priority for them.

Chelsea Fire Department is using on-duty fire personnel to conduct company inspections of schools, hospitals, daycares and nursing homes. Shift personnel are not utilized to inspect moderate risk occupancies, which is a common method for inspecting businesses by most fire departments and adheres to industry best practices. These inspections serve several purposes including: building familiarization, pre-fire planning, training, identification of fire code violations, and public relations. If serious fire code violations are discovered those are sent to the Fire Prevention Office for follow-up. These company inspections should occur in the first due response area to ensure personnel remain available for immediate response and are most familiar with occupancies in their immediate response district.

One issue identified is that no personnel conducting company inspections are trained as inspectors, including the lieutenant overseeing the fire inspection program. The agency should ensure that lieutenant in fire prevention is certified as an inspector and has knowledge of the plan review process and at least one person conducting company inspections is trained as an inspector, serving as the lead inspector during company inspections.

Chelsea fire personnel are not currently performing any pre-fire planning activities on commercial occupancies in the City.

A self-inspection program for small, lower risk occupancies is another program that can be developed to reduce the workload on prevention and line staff. When administered properly, these programs are an effective way to address inspecting small businesses.

Recommendation: Consider adopting the NFPA recommended inspection frequency standard.

Recommendation: Formalize and schedule company inspections on a regular basis.

Recommendation: Develop a risk classification for commercial occupancies and pre-fire plan occupancies based on risk.

Recommendation: Require personnel responsible for conducting commercial occupancy inspections to obtain the appropriate certifications.

Recommendation: Consider establishing a self-inspection program for small, B-type occupancies.

4. OPPORTUNITIES EXIST TO IMPROVE THE PUBLIC EDUCATION EFFORTS OF THE CHELSEA FIRE DEPARTMENT.

Providing public fire education programs can have a very positive effect on minimizing the occurrence of fire in a municipality. Strong education provides an opportunity to minimize the effects of fire, medical emergencies, and disasters on a community. Currently the only public education efforts occurring in the City of Chelsea are those funded by grants.

There is no formal ongoing public fire education program in place in Chelsea, in fact examination of the CFD budget, as shown in Appendix A, revealed there are no dedicated funds budgeted for the provision of public fire education. CFD will conduct public education programs when requested, but there is no effort to market public education opportunities to the residents and businesses of Chelsea unless a specific grant is obtained to fund the program. The types of programs often seen in communities include CPR classes, juvenile fire starter program, fire extinguisher training, station tours, general fire safety, residential safety inspections, distributing public safety announcements and free smoke detector installations.

A smoke alarm program is a very effective means to decrease fire-related fatalities. Most of the fires in the United States occur in residential occupancies. In 2009

fires caused 3,010 deaths and 17,050 injuries in the United States. This is a dramatic decline, which can be linked to smoke detector use. In 1975 less than 5% of homes had working smoke alarms; today that number is closer to 90%. In the same time period deaths dropped from 9,000 to the current number of just over 3,000 annually. Chelsea Fire Department should expand their efforts beyond inspecting homes only involved in real estate transaction to ensure that every home in Chelsea has a working smoke detector.

Recommendation: Begin budgeting to develop and provide an ongoing public fire education program for the community.

5. THE FIRE INVESTIGATION PROGRAM IN CHELSEA APPEARS ADEQUATE TO MEET COMMUNITY NEEDS.

The Fire Captain (Arson Investigator) is responsible for determining the cause of suspicious fires in Chelsea. If a fire is deemed suspicious the Captain makes the determination if there is a need to contact the State Fire Marshal. When a fire is determined to be intentionally set the Captain controls the investigation of the fire scene and works with the Chelsea Police Department for prosecution of the case. The Captain is responsible for writing the supplemental reports related to the fire, while the police department possesses the powers and authority to arrest identified suspects. The Captain is the designated representative for the agency at all court hearings related to fires in the community. This process appears to be working well for the CFD.

6. OPPORTUNITIES EXIST TO IMPROVE THE PUBLIC INFORMATION AND MEDIA RELATIONS PROGRAM IN THE CHELSEA FIRE DEPARTMENT.

Maintaining positive public relations is the responsibility of all employees of CFD. The public information component is important in developing positive public attitudes toward the department. Establishing and maintaining a good working relationship with

the news media will assist CFD in meeting their public education goals by communicating with the residents and businesses they serve.

Per CFD job descriptions, the Administrative Deputy Chief is authorized to release information requested of the Department. There is no policy specific to the media or involving media present at emergency scenes. There is also no policy to address how relationships with local media will be developed and maintained. A well developed media relations policy should also clearly discuss what is releasable and what is not releasable in press releases or during discussions with the media.

Recommendation: Develop a media relation's policy to provide guidance on what information is not to be released, how media should be handled on emergency scenes and how the department can utilize the media to maintain a positive public image.

7. OPPORTUNITIES SHOULD BE CONSIDERED FOR IMPROVING HAZARDOUS MATERIALS RESPONSE CAPABILITIES.

The Chelsea Fire Department has a Captain assigned to oversee hazardous materials issues for the department. This position responds to all level 1 hazardous materials calls in the City and enforces Codes related to hazardous materials storage and usage. The City of Chelsea has numerous community risks involving hazardous materials including:

- Ethanol barges delivering fuel
- Gasoline, jet fuel and No. 2 fuel oil storage
- Liquefied Natural Gas (LNG) tankers
- Liquefied ammonia and chlorine storage
- Nitrogen storage tanks
- Paint, resin and chemical companies

- Proposed ethanol train deliveries
- Gasoline testing laboratories
- LNG storage
- Ammonia storage

Even with the knowledge of the substantial hazardous materials risks present in the community, there is no set schedule for inspecting the occupancies with these risks. The Haz-Mat Captain should become part of the Fire Prevention Division and assigned responsibility for ensure all occupancies with hazardous materials risks are inspected annually at a minimum.

The agency utilizes the Metro-Fire hazardous materials response team and serves as a first responder, trained to the awareness level, to secure the hazardous materials incident scene until the haz-mat team can be deployed. For large incidents the agency relies on the response of one of the other 5 State of Massachusetts regional teams.

Based on the risks present in the City of Chelsea the agency should train personnel to the operations level and maintain a minimum number of personnel trained to the technician level at all times. According to training records there are currently five personnel at CFD trained to the technician level. The agency also does not possess the appropriate equipment on responding apparatus to mitigate hazardous materials leaks or prevent a small leak from becoming a full release of the hazardous substance. Currently all hazardous materials supplies including protective suits are stored in the basement of the main fire station.

Recommendation: Consider assigning the Haz-Mat Captain to Fire Prevention Division to assist in the preventative inspections of occupancies with hazardous materials storage.

Recommendation: Improve training of CFD personnel to move the agency to the operations level of responding to hazardous materials incidents. Consider training a minimum number of personnel, including the hazardous materials Captain to the technician level to ensure hazardous materials incidents are responded to appropriately.

8. OPPORTUNITIES SHOULD BE CONSIDERED FOR IMPROVING FLEET MAINTENANCE LOCATIONS AND / OR OPERATIONS.

The Fire Department provides for its own fleet maintenance within the Headquarters station. The following paragraphs summarize the current situation:

- The Department has a single mechanic who performs the full range of necessary repairs and maintenance on departmental apparatus and vehicles.
- The mechanic has appropriate certifications and is conducting preventative maintenance according to best practices.
- The maintenance bay also doubles as storage area for large parts and tires, presenting a major challenge for the Mechanic and necessitating the movement of parts / tires to perform maintenance on apparatus
- Lack of adequate space causes repairs/maintenance to be performed along the side street of the headquarters building.
- Degreasing of apparatus results in petroleum products being washed into the storm drain system, which is a potential risk and liability for the City of Chelsea.

The City should consider the following solutions to these issues:

- Move the mechanic from the headquarters facility to a joint facility with other heavy equipment mechanics.
- Maintain the current dedicated fire mechanic staffing of one position.
- Support the work of the Fire Mechanic with other heavy equipment mechanics from other departments in the City. This will improve the safety of performing major repairs, changing of tires, etc.

Recommendation: The Fire Department should maintain its dedicated mechanic. However, steps should be taken to shift the work location of the Mechanic to a

site shared with other heavy equipment repair mechanics, which has the appropriate oil separation filters to prevent storm drain contamination. This will improve the safety of the Fire Mechanic's operations.

9. OPPORTUNITIES SHOULD BE CONSIDERED FOR IMPROVING RESPONSE TO INCIDENTS INVOLVING RISKS ASSOCIATE WITH THE WATERWAYS AND MARINE RESPONSE.

The City of Chelsea is surrounded on three sides by water and has considerable maritime risks in the community including the Chelsea Yacht Club, two three bridges spanning the waterways and the transportation of hazardous materials along the waterfront. Currently any emergencies occurring along the waterways involve the use of mutual aid from either the City of Boston or MASSPORT.

According to the United States Coast Guard Area Contingency Plan, local fire departments are responsible for fire protection in their jurisdictions, including marine terminals and facilities. The fire department is also responsible for assuming the lead position in Unified Command structure if the vessel on fire is moored to a shore side facility. Other responsibilities include:

- Establishing and staffing the Command Post
- Dispatching necessary personnel
- Determining the need for and requesting mutual aid, including fire boats and medical aid
- Working within the Unified Command system to coordinate all other aspects of the response including, waterside security, landside traffic, crowd control, scene security, and evacuation
- Providing portable communications equipment to response personnel from outside agencies

While analysis of CAD data did not allow the determination of how many annual incidents are occurring along the waterway, there is considerable risk that must be

addressed. The Chelsea Fire Department should develop a detailed response plan for how it will respond to marine emergencies and what their current capabilities are as well as those of their mutual aid partners. The Department should also consider entering into a separate agreement or developing a regional response plan with mutual aid partners for the provision of providing assistance to emergencies along the waterway.

Recommendation: Consider working with your mutual aid partners and Chelsea PD to develop a regional response plan for dealing with emergencies along the waterways.

10. THE CHELSEA FIRE DEPARTMENT SHOULD EVALUATE THE CURRENT POLICY RELATED TO REQUIRING DETAILS TO ENSURE DETAILS ARE USED WHEN AN EMERGENT RISK TO LIFE OR PROPERTY EXISTS.

The Chelsea Fire Department currently utilizes details to provide a sworn member of the agency to “standby” until conditions identified can be resolved. During community discussions there were mixed opinions about whether all the details were truly needed and how the department communicated the need for details to business owners. A survey distributed by the Chamber of Commerce to local businesses generate 23 responses, of those:

- 55.5% of respondents thought details were only required when needed to address life safety issues, while 27.8% of respondents disagreed with this statement. The remaining respondents were neutral.
- 25% of respondents agreed that the details were well scheduled and coordinated with property owners, while 31.3% disagreed with this statement. The remaining respondents were neutral.

The same respondents agreed that:

- 88.9% that the Chelsea Fire Department provides excellent services to the community.
- 100% that the Fire Department responds quickly to emergencies.

- 100% that the Chelsea Fire Department meets the needs of the community.

A review of the financial statements related to fire details also revealed interesting findings. The table below shows the five-year invoice amounts charged to local business and homeowners related to providing fire details:

	2007	2008	2009	2010	2011	5-Year % Increase
Invoice Amounts	\$277,683	\$394,246	\$341,184	\$456,924	\$432,540	55.8%

As shown charges to local businesses and homeowners have increased steadily over the past five years from total invoices for details of \$277,683 in 2007 to \$432,540 in 2011, which is an increase of over 55% for the five-year period. It is important to note that the City pays the firefighters for working the details and bills the businesses directly, often these invoices are unpaid which results in details costing the City of Chelsea.

Recommendation: The Department should review the current policy of when details are required to ensure that they only occur when an immediate threat to life or threat of significant property loss exists.

Recommendation: The Department should develop a guide for homeowners and business to explain detail, when it will begin, what must be done to correct the risks identified and the costs associated with the detail immediately upon determination that a detail is required.

APPENDIX A: PROFILE OF THE FIRE DEPARTMENT

This profile provides summary information regarding the current organization and operation of the Chelsea Fire Department (CFD), which serves as the context for the performance and management study. The various types of data were developed through interviews with CFD management and personnel, tours of stations and the Fire Department's response area, review of available documents and records, as well as access to computerized records and data sets. This profile provides information that will be utilized by the project team to analyze workloads, organization, management and service levels provided by the CFD. The organization of this profile is as follows:

- Organization and Staffing
- Department Budget
- Emergency Operations Daily Staffing
- Personnel Costs and Overtime Utilization
- Fire Department Roles and Responsibilities
- Fire Department Workloads and Response Times

The first section that follows provides the general overview of the Chelsea Fire Department, including its organization and authorized staffing.

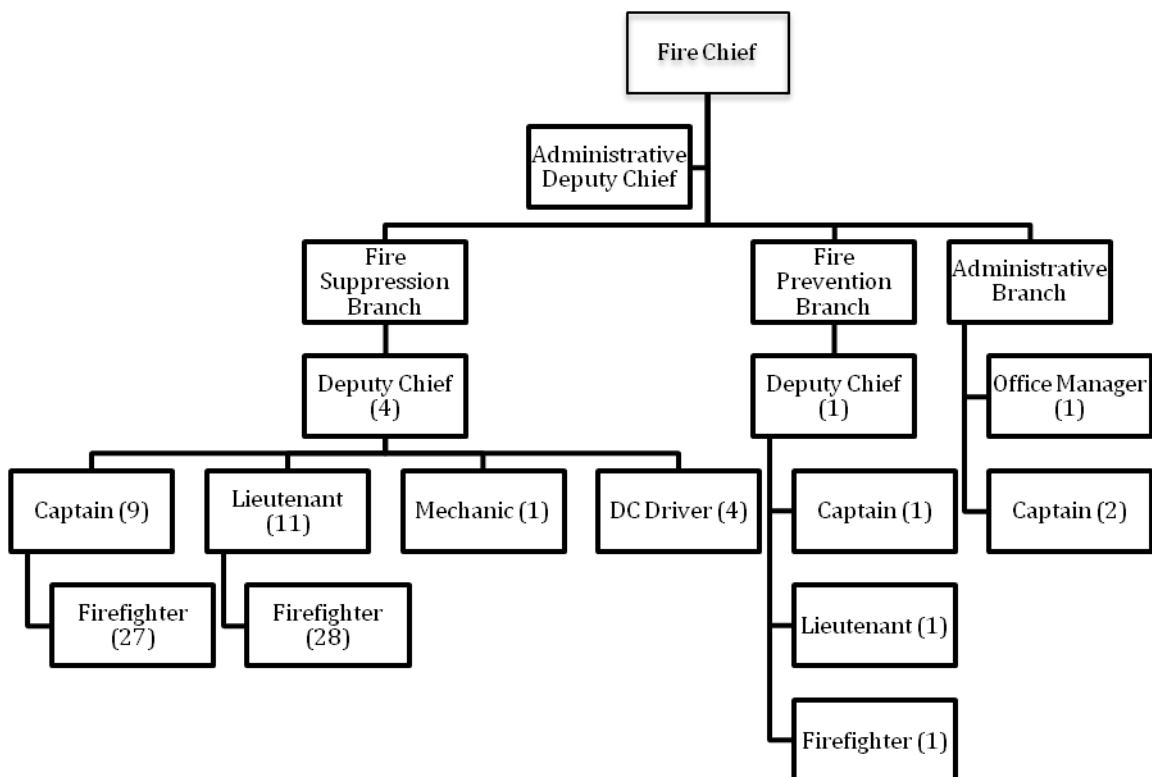
1. ORGANIZATION OF THE CHELSEA FIRE DEPARTMENT

The Chelsea Fire Department provides response to fires, emergency medical emergencies, hazardous materials incidents, natural and man-made disasters, mutual aid assistance to neighboring departments and related emergencies in an effort to reduce life and property loss. The Department provides specialized rescue operations,

and supports a regional hazardous material team. In addition, the Fire Department inspects businesses and properties, assists with code enforcement, and conducts public education programs. There are three functional areas in the Fire Department: Fire Suppression Branch (Fire and EMS first responder), Fire Prevention Branch, and Administrative Branch.

The organization chart on the next page shows the current organizational structure of the Chelsea Fire Department when all 93 authorized positions are filled:

**Organizational Chart
Chelsea Fire
Department**



The table, which follows, shows the number of authorized positions over the past two fiscal years, as well as the current number of vacancies within the Chelsea Fire Department:

Chelsea Fire Department
Authorized Positions FY 11-12

Position	FY 2011	FY 2012	Current	Vacant
Fire Chief	1	1	1	0
Deputy Fire Chief	6	6	6	0
Office Manager	1	1	1	0
Captain	12	12	12	0
Lieutenant	12	12	11	0
Firefighter	56	60	58	2
Mechanic	1	1	1	0
Total	89	93	92	2

The following points highlight the information presented above:

- The current number of authorized positions is 93 and includes 2 vacancies. The current vacancies are at the Firefighter level.
- There are currently eleven (11) firefighters funded by a SAFER grant which will end in September 2012 and four (4) firefighters funded by a second SAFER grant which will end in 2014.
- By classification, the number of personnel assigned to shift duties has remained constant with a staffing of four (4) Deputy Chiefs, four (4) Chief Aides, Eight (8) Captains, twelve (12) Lieutenants and 55 Firefighters assigned to the three stations on a 24 hours on followed by 24 hours off and then 24 hour on followed by 120 hours (5 days) off shift schedule.

The next section provides information on the CFD's current budgeted and projected expenditures.

2. DEPARTMENT BUDGET

The table, below, shows the CFD budgets for FY 2009 - FY 2012:

**Chelsea Fire Department
FY 2009 - FY 2012 Budget Comparison**

Line Items	FY 2009 Actual	FY 2010 Actual	FY 2011 Actual	FY 2012 Adopted
Regular Salaries	5,789,982	5,809,608	5,588,886	5,496,485
Overtime	678,277	707,053	924,468	700,000
SAFER	0	134,688	91,291	0
SAFER 11	0	0	353,034	1,226,376
SAFER 12	0	0	0	421,473
Out of Grade	72,455	58,034	80,355	62,500
EMT Stipend	72,533	73,240	70,667	70,800
Comp Buy-Back	54,416	63,644	51,175	70,000
Uniform Allowance	102,400	99,100	93,600	101,300
Longevity	108,300	115,900	111,000	106,800
Other Fringe	23,912	26,821	37,852	30,000
Sick Buyback	67,000	12,500	27,000	27,000
Station Detail	10,000	11,660	7,920	13,500
Unused Sick Leave Bonus	32,850	47,350	48,225	50,000
TOTAL FIRE SALARY	7,014,125	7,159,598	7,485,474	8,376,234
Utilities	104,831	87,796	95,944	108,700
Office Related Expenditures	10,537	8,031	7,916	9,950
Building Expenses	2,582	6,890	4,192	5,000
Equipment/ Maintenance	225,114	268,497	261,161	245,050
Professional/Technical/Contract Services	55,650	55,650	55,650	111,650
Training/Conferences	12,342	10,300	8,619	13,050
Dues & Subscriptions	4,283	4,472	3,808	4,500
Vehicles	3,789	26,940	0	29,000
TOTAL OPERATING COSTS	419,128	468,576	437,290	526,900
TOTAL FIRE DEPARTMENT BUDGET	7,433,253	7,628,154	7,922,763	8,903,134

As shown above, the FY 2012 adopted budget is \$8.874 million, including the three SAFER grants. This is approximately 12% above the actual expenditures budget for FY 2011 and 16.3% above FY2010 actual expenditures.

3. OPERATIONS DAILY STAFFING

The Chelsea Fire Department currently operations from 3 fire stations, each located within City limits.

Station	Address
Central Station	307 Chestnut St.
Mill Hill Station	883 Broadway
Prattville Station	32 Sagamore Ave.

Previously, the department has operated out of as many as five (5) fire stations. A station located at 105 Everett Avenue was closed in 1991 and a station at 104 Park Street was closed in 1974. These stations each housed an engine company.

The current daily minimum staffing and assignment of each unit is shown in the table, below:

City of Chelsea, Massachusetts
Shift Unit Assignments by Station and Minimum Staffing

Station	Units	Minimum Staffing
Main	Deputy Chief	1
	DC Aide	0
	Engine 2	3
	Tower 1	3
	Engine 4	(Reserve)
Mill Hill	Engine 3	3
	Ladder 2	3
Prattville	Engine 1	3
	Ladder 3	(Reserve)
Command	1	1
Engines	3	9
Ladder	1	3
Tower	1	3
Daily Staffing	22	16

As shown above, a total of 22 line personnel are scheduled each day to staff units with minimum staffing being 16.

Personnel work 24-hour shifts on a rotating basis with 24 hours off after their first scheduled shift and 5 days off after their second shift. Shifts are scheduled to begin and end at 6:00 p.m. The rotation results in a 42-hour average FLSA workweek for shift personnel. The table, below, shows the number of shifts worked during the month of March 2012. All shifts are indicative of the oncoming shift at 6:00 pm:

Chelsea Fire Department
Pro forma Shift Schedule by Group March 2012

Sun	Mon	Tues	Wed	Thu	Fri	Sat
				3	1	3
2	4	2	4	1	3	1
3	2	4	2	4	1	3
1	3	2	4	2	4	1
3	1	3	2	4	2	4

As shown above, the scheduled staffing for each shift is 22 personnel. The table below shows the actual staffing based on a sampling of daily attendance rosters for 212/12-hour periods during calendar year 2011.

Chelsea Fire Department
Average Staffing by Unit / Group 2011

Group	DC Car	Engine 1	Engine 2	Engine 3	Tower 1	Ladder 2	Daily Average
1	1.82	3.00	3.00	3.00	3.18	3.11	17.11
2	1.88	3.04	3.04	3.00	3.10	3.06	17.12
3	1.89	3.05	3.09	3.04	3.17	3.09	17.32
4	1.98	3.03	3.02	3.02	3.12	3.04	17.20
Average	1.89	3.03	3.04	3.01	3.14	3.08	17.19

As illustrated above, the actual daily staffing for the Chelsea Fire Department is approximately 17.2 personnel, which is just slightly above the minimum staffing level of 17. Group 3 has the highest average staffing at 17.32 and Group 1 the lowest at 17.11 personnel on duty per shift.

The next section provides information on personnel costs, use of leave, and overtime utilization.

4. PERSONNEL COSTS AND OVERTIME UTILIZATION

The project team collected salary data for the Fire Department. The table, below, shows the average salary cost by position:

**Chelsea Fire Department
Average Salaries by Position**

Position	Average Salary
Fire Chief	\$137,000
Deputy Chief	92,295
Officer Manager	42,361
Captain	80,923
Lieutenant	71,753
Firefighter	\$57,200
Mechanic	58,597

The following table shows the average daily overtime usage by apparatus and group for the same 212/12-hour staffing periods in Calendar year 2011:

**Chelsea Fire Department
Average Shift Overtime 2011**

Group	DC Car	Engine 1	Engine 2	Engine 3	Tower 1	Ladder 2	Overall Average
1	3.43	1.88	3.00	3.00	4.93	4.36	20.59
2	2.25	5.42	4.71	2.19	4.31	6.92	25.79
3	3.31	5.05	3.72	4.76	3.52	6.00	26.36
4	1.44	5.76	4.64	5.14	6.72	4.56	28.26
Grand Total	2.66	4.46	3.97	3.80	4.83	5.43	25.16

As indicated above, the project team obtained a sampling of attendance rosters from each month for the 2011 calendar year. The following information is arrived from an analysis of this information and represents 212/12-hour blocks of time for shifts over the one year:

- The unit with the most regular hours worked during the year was Tower 1, which averaged a staffing level of 3.14 personnel each shift. This equals approximately 75 man-hours available per day on Tower 1. Overall daily average staffing was highest on Group 3 with approximately 416 man-hours available on Group 3.
- As shown above, Suppression personnel within the Department worked an average of approximately 25 hours during each 12-hour work period in calendar

year 2011 (for all reasons/types of overtime). This equates to a daily average of just over 2 overtime shifts (24 hour shifts) each day during the year. The highest overtime occurred on Group 4 with an average requirement of 28 hours per 12-hour work period. Ladder 2 on Group 2 had the highest overtime requirement at approximately 7 hours of overtime for each 12-hour work period. This means that Chelsea FD is hiring an average of approximately 2.1 personnel on overtime each day to ensure proper staffing of apparatus.

The final exhibit in this section shows the total amount of leave utilized by Department personnel over the 212/12-hour sample shift periods.

Chelsea Fire Department
Leave Utilization/Hours, 2011

Gro up	Vacati on	Sic k	Injury/non- service	Injury/Service Related	Deat h	Per Chief	Comp Time	Milita ry	Oth er	Total
1	1,296	384	132	852	0	144	108	0	60	3,012
2	1,176	636	60	667	0	36	122	0	84	2,841
3	1,536	552	48	1,800	120	0	79	0	60	4,195
4	1,068	360	0	694	24	96	64	48	0	2,354
Total	5,076	1,932	240	4,013	144	276	373	48	204	12,402

As shown above, leave utilization (vacation, holiday, sick leave, etc.) varies considerably by shift over the 212/12-hour shift period. The shift with the highest utilization of leave time was Group 3 with 4,195 hours of leave and lowest leave rate was used by Group 4 with 2,345 hours of leave. Of the shifts reviewed, vacation was the most used leave type at 5,076 hours followed by Service Connected Injuries at 4,013 hours. Of the 12,402 hours of leave utilized, 32.4% was for Service Connected Injuries.

5. FIRE DEPARTMENT ROLES AND RESPONSIBILITIES

The following table describes the key roles and responsibilities of personnel within the Chelsea Fire Department.

Position / Classification	Authorized	Current	Key Roles and Responsibilities
Fire Chief	1	1	<ul style="list-style-type: none">• Provides the executive management of the Fire Department, including the development of policies and procedures, providing leadership for future services, budget development, identifying service gaps, working with the elected officials and City management to ensure that the CFD interests are considered.• Provides education regarding how the CFD operates, what its services are, what the resource needs are.• Supervises the Deputy Chiefs, Office Manager and Administrative Captains.
Office Manager	1	1	<ul style="list-style-type: none">• Reports to the Fire Chief.• Prepares payroll for the Department, maintains files, and provides general administrative support.• Processes RFP's and Department Purchase Orders.• Serves as the Records Manager for the department.• Maintains Injury Report Logs.• Assists Chief with budget development and maintenance.

CITY OF CHELSEA, MASSACHUSETTS
Performance and Management Study of the Fire Department

Position / Classification	Authorized	Current	Key Roles and Responsibilities
Deputy Chief	6	6	<ul style="list-style-type: none"> • Report to the Fire Chief. <ul style="list-style-type: none"> • Administrative Deputy Chief <ul style="list-style-type: none"> ○ Prepares and maintains weekly roster ○ Schedules extra assignments ○ Coordinates special projects ○ Schedules station transfers ○ Ensure schedule is compliant with contract ○ Conducts grant research ○ Attends meetings to represent department ○ Serves as Fire Chief if Chief is absent for periods of less than one week • Shift Commanders <ul style="list-style-type: none"> • Serve as incident commander on emergency scenes • Supervise the Shift Captains, Lieutenants and Aide • Ensure schedule for next shift • Group 1 DC <ul style="list-style-type: none"> ○ Supervises Mechanic ○ Oversees Apparatus Maintenance ○ Develops Specs for Apparatus ○ Coordinates Apparatus Purchases • Group 2 DC <ul style="list-style-type: none"> ○ Oversees Personnel Protective Equipment ○ Responsible for Tools and Equipment for agency ○ Provides assistance in budget development • Group 3 DC <ul style="list-style-type: none"> ○ Oversees purchases of hose and foam ○ Oversees hose testing and repair ○ Assists in coordinating training ○ Coordinates SupraSafe Program • Group 4 DC <ul style="list-style-type: none"> ○ Oversees station maintenance ○ Oversees SCBA maintenance and purchasing ○ Serves as agency liaison for Building Department • Fire Prevention DC <ul style="list-style-type: none"> ○ Conducts Q/A on Fire Incident reports ○ Conducts plan review and design for fire alarm, suppression systems and building ingress/egress. ○ Supervises Arson Investigator, Lieutenant and Computer Analyst. ○ Maintains site files ○ Issues citations to enforce code issues. ○ Issues permits. ○ Serves as Dept. liaison with Dispatch ○ Maintains records and prepares reports related to calls, call volume and call type. ○ Coordinates installation of signage to identify buildings with lightweight trusses. • Currently one DC on Work Related Injury Leave

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Position / Classification	Authorized	Current	Key Roles and Responsibilities
Captain	12	12	<ul style="list-style-type: none"> • Fire Suppression <ul style="list-style-type: none"> • Report to Deputy Chief /Shift Commander. • Serve as supervisor on Ladder 2 and Tower 1. • One captain assigned to Engine 3. • Senior Captain is station commander. • Assign shift assignments to members of crew. • Ensure stations are adequately stocked to function. • Each Captain has specific station responsibilities. • Fire Prevention <ul style="list-style-type: none"> • Reports to the Prevention Deputy Chief. • Works 4/10 shift schedule. • Serves as Fire Marshal for the Department. • Department Liaison with Chelsea District Court. • Serves as back-up inspector. • Processes all payments to the Department (Details, violations, permits). • Prepares supplemental reports for fires investigated. • Investigates suspicious fires and all automobile fires. • Coordinates the agency Knox Box program. • Training <ul style="list-style-type: none"> • Reports to the Fire Chief • Works a 4/10 Schedule. • Serves as training officer for the Department. • Conducts planning related to daily drills. • Conducts proficiency training for personnel on newly acquired apparatus. • Serves as incident safety officer for working fires occurring while on duty. • Assists with purchasing equipment funded by grants. • Hazardous Materials <ul style="list-style-type: none"> • Reports to the Fire Chief. • Works a 4/10 schedule. • Responds to all level 1 hazardous material calls. • Develops plans for homeland security issues. • Assists with grants. • Reviews situational plans with local fuel storage facilities. • Enforces codes related to hazardous materials storage and usage. • Prepares incident staffing report for Director of Emergency Management for billing purposes on hazardous material incidents. • Ensures compliance with Tier II reporting. • Currently one Captain is on Work Related Injury Leave.

CITY OF CHELSEA, MASSACHUSETTS
Performance and Management Study of the Fire Department

Position / Classification	Authorized	Current	Key Roles and Responsibilities
Lieutenant	12	12	<ul style="list-style-type: none"> • Fire Suppression <ul style="list-style-type: none"> • Serve first line supervisor and company officer for Engine Companies. • Maintain the station journal at each station. • Prepare daily logs related to attendance. • Assign daily work tasks to assigned personnel. • 1 Lieutenant scheduled to retire on 4/21/12 • Fire Prevention <ul style="list-style-type: none"> • Reports to the Prevention Deputy Chief • Works a 4/10 schedule • Serves on the Department Arson Investigation Team. • Serves as a translator for the Agency. • Conducts inspections of all occupancies involved in real estate transactions. • Conducts quarterly inspections of all Nursing Homes and Schools in Chelsea. • Conducts code enforcement inspections related to illegal housing complaints. • Conducts bi-annual inspections of all oil storage facilities. • Issues tank truck permits for vehicles receiving type 2 fuel or mixed loads.
Firefighter	60	59	<ul style="list-style-type: none"> • Suppression <ul style="list-style-type: none"> • Assigned to one of three engines, tower, ladder or as driver for Deputy Chief. • Work 24/24 followed by 24/5 days off schedule • Perform daily shift duties • Participate in daily training drill. • Respond to emergency calls for service. • Assist Prevention Inspection in conducting quarterly inspections of Day Care Centers, Public Schools, Nursing Homes and Community College. • Tower 1 and Engine 2 personnel split front desk watch duties from 8a-5p daily. • Prevention <ul style="list-style-type: none"> • Reports to the Deputy Chief of Prevention • Works a 4/10 schedule • Schedules and hires daily details • Issues permits related to sprinkler systems, fire alarm systems, welding operations, oil burners, storage tank installation and removal, fuel transfer operations and LPG storage tanks. • Removes master fire boxes from service for maintenance. • Completes monthly NFIRS report for submission to the State Fire Marshal.

CITY OF CHELSEA, MASSACHUSETTS
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Position / Classification	Authorized	Current	Key Roles and Responsibilities
Mechanic	1	1	<ul style="list-style-type: none">• Conducts preventative and routine maintenance on agency apparatus and vehicles.• Conducts preventative and routine maintenance on agency small engine equipment.• Responds to emergency scenes for emergency repairs on apparatus.

APPENDIX B: RESULTS OF THE EMPLOYEE SURVEY

This section discusses the results of the anonymous employee survey. The Matrix Consulting Group conducted an employee survey of the City of Chelsea Massachusetts Fire Department to allow employees the opportunity to provide confidential input with regard to the overall perceptions of the department. Although a number of key staff members were interviewed prior to the dissemination of the survey, the results provided the project team with another tool to allow employees an opportunity to provide input, as well as the ability to quantify employee perceptions regarding a number of agency related perceptions.

1. THE SAMPLE AND RESPONSE RATES

A total of 93 surveys were distributed to the various types of fire personnel. Of the 93 sent, 69 respondents partial or fully completed the entire survey for a response rate of 74%.

- **By Role**

- **Administration Staff.** Of the 69 (67 answered and two skipped questions) surveyed, four administrative staff members responded to the survey.
- **Operations Staff.** Of the 69 respondents solicited, 51 responded.
- **Prevention Staff.** Of the 69 surveyed, six administrative staff members responded to the survey.
- **Other Staff.** Of the 69 respondents solicited, six responded.
- **No Response.** Of the 69 respondents, only two chose not to respond.

Table 1

Response by Role

Role in Agency	Count	Percent
Administration/Other	4	6%
Operations	51	74%
Prevention	6	9%
Other	6	9%
No Response	2	3%
Total:	69	100%

***Response Rate = 93 sent/69 responded (74% response rate)

- **By Status**

- **Sworn Staff.** Of the 69 surveyed, 32 identified themselves as sworn personnel.
- **Civilian Staff.** Of the 69 respondents solicited, 2 identified themselves as civilian status.
- **No Response.** Of the 69 respondents, over half (n=35) of the sample chose not to identify by their status.

Table 2

Response by Status

Status	Count	Percent
Sworn	32	46%
Civilian	2	3%
No Response	35	51%
Total:	69	100%

2. SURVEY DESIGN AND METHODOLOGY

The Chelsea Fire Department (or “Fire Survey”) was intended to elicit information on current service delivery levels, with respect to management, administrative, organization, staffing, operations, equipment, facilities, and assessment of strengths and opportunities to improve Chelsea Fire Department.

The survey primarily employed a seven-level Likert item (Strongly Agree” “Agree” “Neutral” “Disagree” “Strongly Disagree” “No Opinion” and “Neutral”) bipolar scaling model used to measure positive and negative responses to statements. The uses of open-ended questions were designed to encourage reflection on one’s own knowledge or feelings concerning a particular statement. The draft survey instrument was carefully developed by the Matrix Consulting Group’s project management team, and carefully reviewed by Chelsea Fire Staff. Based on feedback from these Chelsea Fire staff, the survey was modified and finalized.

The questionnaire was designed to be an electronic survey. The survey was fielded in April of 2012, and e-mailed to each staff members in our sample. The survey instrument was designed to be completed in 20 or less minutes to reduce costs on staff time and to increase the response rate.

3. SURVEY FINDINGS AND RESULTS

The following tables display the findings for the outcomes of the survey instrument. To take into account the relative differences between Operation’s Staff and Sworn Staff, we include three levels of measurement in our analyses: Operation’s Staff, Sworn Staff, and All Other Staff (Administrative, Prevention, Civilian and Other staff) for comparison of respondent attitudes.

(1) Service to the Community.

In assessing whether there is a department-wide pattern of support for service delivery, we critically analyze perceptions of quality of fire service, quality of EMS service delivery, service delivery levels compared to other local agencies, effectiveness of fire prevention services, quality of public education efforts, support from public,

mutual aid efforts, and contract EMS service delivery levels. In Table 3 (attached to this report), “Strongly Agree” and “Agree” were combined into one variable “Agree”, “Disagree” and “Strongly Disagree” were also combined into one variable “Disagree” and responses “No Opinion” and “Neutral” were combined and labeled as “Neutral”. The percent of respondents are set forth by departmental role.

From that assessment, we found the following, for CFD staff:

- **CFD provides high quality FIRE services to the community.** As shown in the table, a total of 100.0 percent of Admin/Other Staff, 92.2 percent of Operations staff, and 80.0 percent of Prevention Staff agreed that Chelsea Fire Department provides high quality FIRE services to the community.
- **CFD provides high quality EMS services to the community.** When asked about CFD EMS service quality, 85.7 percent of Admin/Other, 74.5 percent of Operations, and 80.0 percent of Prevention agreed that CFD EMS services provided are of a high quality.
- **Compared to neighboring agencies, CFD provides high levels of service.** Compared to other Fire companies in the area, 85.7 percent of Admin/Other, 73.5 percent of Operation Staff, and 80.0 percent of Prevention Staff feel that CFD provides high levels of service.
- **Strong support yields effective levels of prevention services to the community.** The Matrix Consulting Group project team found that 85.7 percent of Admin/Other Staff, 79.6 percent of Operations Staff, and 80.0 percent of Prevention Staff agreed that CFD provides effective levels of prevention services.
- **Administration, Other and Operations staff believe that CFD provides effective levels of public education services, while Prevention Staff held mix beliefs.** As indicated, 57.1 percent of Admin/Other Staff, 57.1 percent Operations Staff were in agreement that CFD provides effectiveness public education services, while Prevention staff held mixed thoughts with 40.0 percent agreeing, 20.0 percent disagreeing, and 40.0 percent neutral.
- **Chelsea Fire Administration, Other and Operations Staff feel that citizens view the department as a high priority, while majority of Prevention Staff disagreed.** Admin/Other Staff and Operations Staff were mixed concerning resident viewing CFD as a priority with 42.9 percent of Admin/Other Staff agreeing (28.6 percent disagreement and 28.6 percent neutral), 42.9 percent of Operations Staff agreeing (34.7 percent disagreement and 22.4 percent neutral), and 60.0 percent of Prevention Staff in disagreement (40.0% agreement).

- **CFD provides effective mutual aid.** As indicated, 85.7 percent of Admin/Other Staff, 95.8 percent of Operations Staff, and 80.0 percent of Prevention Staff agree that CFD provides effective mutual aid to neighboring agencies.
- **CFD receives effective mutual aid.** Inspection of the data showed that 71.4 percent of Admin/Other Staff, 89.8 percent of Operations Staff, and 80.0 percent of Prevention Staff agree they receive effective mutual aid from neighboring agencies.
- **Admin/Other Staff believe contract services are high levels of quality, Operations staff believe contract services do not provide high levels of quality and Prevention Staff beliefs were mixed.** CFD employees were also asked whether they agree or not that contract ambulance services are provided at high levels of quality. Overall, employees were mixed with 57.1 of Admin/Other Staff agreeing, 34.7 percent agreement and 34.7 percent disagreement from Operations Staff, and 40.0 percent agreement and 40.0 percent neutral response from Prevention Staff.

(2) Management and administration.

In this sub-section, we are assessing whether there is a department-wide pattern of support for management and administration, we carefully analyzed perceptions of leadership vision/direction, informed on latest information, confidently provide input to management, work related expectations, opinions are heard, problem solving capabilities, accountability, innovation and progressiveness, planning and scheduling, policies and procedures, and training.

From that assessment, we found the following, for CFD staff:

- **Employees indicate mix beliefs concerning clear vision/direction for the future.** In the survey, staff was asked whether or not they believed that CFD has a clear vision/direction for the future. A total of 42.9 percent agreed and 42.9 percent Admin/Other staff disagreed indicating mixed feelings. Mixed feelings were also noted for Operations Staff as 50.0 percent agreed, 24.0 percent disagreed, and 26.0 percent were neutral. However, Prevention staff were also mixed, however, Prevention Staff were more so in disagreement than other staff with 20.0 percent agreement, 40.0 percent disagreement, and 40.0 percent neutral.

- **Most of the CFD employees feel they are well informed of new information.** As specified in the findings, Admin/Other Staff (85.7%) and Operations Staff (70%) agreed that they are well informed of new information, while Prevention Staff were mostly mixed with 40.0 percent disagreement and 40.0 percent neutral.
- **Most of the CFD Admin, Other, and Operations Staff feel they are able to provide input to their supervisors, while Prevention Staff mostly disagreed.** Similar findings were indicated when asked whether or not employees feel they are able to provide input to their supervisor. 71.4 percent of Admin/Other Staff and 68.0 percent of Operations Staff agreed they could provide input, while 40.0 percent of Prevention staff disagreed (40% neutral).
- **CFD employee work performance expectations are made clear.** With 57.1 percent of Admin/Other Staff, 73.5 percent of Operations Staff, and 60.0 percent of Prevention Staff.
- **Most of the staff believes their opinions are listened to.** With 57.1 percent of Admin/Other Staff, 52.0 percent of Operations Staff agreeing with the statement, while 40.0 percent of Prevention Staff agreed and 40% neutral.
- **Admin, Other and Operations Staff feel problems are resolved in a timely manner and Prevention Staff believe problems are not solved quick enough.** When problems occur within the organization, 71.4 percent of Admin/Other Staff and 50.0 percent of Operations Staff agree that problems are resolved in a timely manner, while 60.0 percent of Prevention Staff disagreed.
- **Mixed feelings among respondents were indicated when asked about staff accountability.** About 71.4 percent of Admin/Other Staff and 48.0 percent of Operations Staff agreed, while 40.0 percent of Prevention Staff agreed and 40.0 percent of Prevention Staff were neutral.
- **CFD appears to be innovative and progressive.** Over 85.7 percent of Admin/Other Staff and 54.0 percent of Operations Staff agreed that CFD seems to be innovative and progressive, while 40.0 percent of Prevention Staff disagreed (40% neutral).
- **Overall, CFD does a good job planning and scheduling work assignments each shift.** Over 57.1 percent of Admin/Other Staff, 78.0 percent of Operations Staff, and 60.0 percent of Prevention Staff agreed with this statement.
- **Mixed feelings concerning policies and procedures were noted.** Majority of Admin/Other Staff were neutral (71.4%), while 52.0 percent of Operations Staff and 60.0 percent of Prevention Staff agreed that policies were up-to-date and consistently followed.

- **CFD staff mostly believes they receive proper training in order to be effective in their current assignment.** About 57.1 percent of Admin/Other Staff, 48.0 percent of Operations Staff, and 60.0 percent of Prevention Staff were in agreement with the statement.

(3) Organization, Staffing and Operations.

In evaluating whether there is a department-wide pattern of support for organization, staffing, and operations, we carefully analyze perceptions of resource needs, staffing levels, service demands, station closures, utilization of resources, response times, dispatch information, teamwork, pre-fire planning, inspection,, fire prevention and education programs, skills training, leadership training efforts, and retention of quality personnel. In Table 4 (attached to this report), “Strongly Agree” and “Agree” were combined into one variable “Agree”, “Disagree” and “Strongly Disagree” were also combined into one variable “Disagree” and responses “No Opinion” and “Neutral” were combined and labeled as “Neutral”. The percent of respondents are set forth by departmental role.

From that assessment, we found the following, for CFD staff:

- **Resources in Chelsea are not adequate enough to meet the needs of FIRE/EMS services.** As indicated, 85.7 percent of Admin/Other Staff, 76.0 percent of Operations Staff, and 60.0 percent of Prevention Staff disagree CFD resources are adequate enough to meet FIRE/EMS needs of the City.
- **Staffing levels in Chelsea Fire are not adequate enough to safely and effectively handle incidents.** As shown, 71.4 percent of Admin/Other Staff, 78.0 percent of Operations Staff, and 80.0 percent of Prevention Staff disagree CFD staffing levels are adequate enough to perform safely and effectively during incidents.
- **CFD staff unable to meet the needs of the community with currently levels of staffing.** As implied, 71.4 percent of Admin/Other Staff, 80.0 percent of Operations Staff, and 100 percent of Prevention Staff disagree CFD is adequately staffed to meet demands for service.

- **Overall, staff feels that station closures have impacted their ability to meet community service expectations.** With 85.7 percent of Admin/Other staff, 70.8 percent of Operations Staff, and 80.0 percent of Prevention Staff agreeing with the statement.
- **Mixed beliefs show that CFD effectively utilizes flexible unit assignments when deploying staff.** When asked if station planning effectively utilized the flexible unit assignments, 42.9 percent of Admin/Other Staff agree, while 28.6 percent disagree and 28.6 percent neutral. Operations Staff mostly agreed (42.6%), while 21.3 percent disagreed and 36.2 were neutral. Employees in Prevention department indicated 40.0 percent disagreement, 40.0 percent neutral, and 20.0 percent agreement.
- **Response times in Chelsea are good.** Majority of respondents agree that EMS, FIRE and RESCUE response times are good with 42.9 percent of Admin/Other Staff agreeing, 70.8 percent of Operations Staff, and 60.0 percent of Prevention Staff also in agreement.
- **Dispatch information is inaccurate and untimely.** Majority of employees feel dispatch information is inaccurate and not provided in a timely manner. About 71.4 percent of Admin/Other, 81.6 percent of Operations, and 60.0 percent of Prevention Staff.
- **Strong teamwork occurs on calls for service.** Overwhelming support among all employees indicates strong teamwork on calls for service. Approximately 71.4 percent of Admin/Other, 93.9 percent of Operations, and 80.0 percent of Prevention.
- **Current approaches to effective pre-fire planning indicate mix perceptions among all employees.** About 57.1 percent of Admin/Other Staff were neutral, 53.1 percent of Operations Staff agreed, and 60.0 percent of Prevention Staff disagreed.
- **Majority of Admin/Other and Operations Staff agree that inspection programs are efficient and effective, while majority of Prevention Staff were neutral.** About 71.4 percent of Admin/Other, 58.3 percent of Operations Staff, and 60.0 percent of Prevention Staff.
- **Employees were mixed concerning Fire Prevention and Public Education information and its effectiveness in delivering adequate information to the community.** About 42.9 percent of Admin/Other agree, 41.7 percent of Operations Staff were also in agreement, and 60.0 percent of Prevention Staff disagreed.

- **Perceptions were also mixed in regard to practical training to keep all skills high.** With 42.9 percent of Admin/Other Staff agreeing, 53.1 percent of Operations Staff disagreeing, and 60.0 percent of Prevention Staff in agreement.
- **Majority of respondents believe that company officers receive adequate levels of training to be effective leaders and trainers.** With 57.1 percent of Admin/Other Staff, 55.1 percent of Operations Staff, and 60.0 percent of Prevention Staff in disagreement.
- **Employees held mix beliefs that CFD places a high value on ensuring proper training for field personnel.** About 57 percent of Admin/Other Staff were neutral, 46.9 percent of Operations Staff agreed, and 40.0 percent of Prevention Staff agreed, yet 40.0 percent disagreed to the statement.
- **As shown, majority of all staff believe that CFD retains highly qualified personnel.** About 57.1 percent of Admin/Other Staff agreed, 63.3 percent of Operations Staff agreed, while a split between agreement/disagreement occurred among Prevention Staff with 40.0 percent support in both categories.

(4) Equipment and Facilities.

In evaluating whether there is a department-wide pattern of support for equipment and facilities, we carefully analyze perceptions of equipment, technology, maintenance levels, fire station locations, physical condition of fire stations, and apparatus replacement. In Table 5 (attached to this report), “Strongly Agree” and “Agree” were combined into one variable “Agree”, “Disagree” and “Strongly Disagree” were also combined into one variable “Disagree” and responses “No Opinion” and “Neutral” were combined and labeled as “Neutral”. The percent of respondents are set forth by departmental role.

From that assessment, we found the following, for CFD staff:

- **Majority of staff believe they are unable to provide high levels of service quality with the current equipment.** Over 42.9 percent of Admin/Other Staff and 44.9 percent of Operations Staff disagreed, while 60.0 percent of Prevention Staff agree CFD has the equipment to provide high levels of service.
- **Majority of staff feel IT needs are not being met.** As shown, 42.9 percent of Admin/Other Staff agree, 40.8 percent of Operations Staff disagree, and 60.0

percent of Prevention Staff disagree that IT services meet the needs of the department.

- **Majority of staff agree that FIRE and EMS equipment is well maintained.** With 85.7 percent of Admin/Other Staff and 77.6 percent of Operations Staff agreeing with the statement, while 40.0 percent of Prevention Staff agreed and 40.0 percent of Prevention Staff disagreed.
- **Overall, FIRE apparatus is well maintained.** About 85.7 percent of Admin/Other Staff, 93.9 percent of Operations Staff, and 80.0 percent of Prevention Staff agreeing with the statement.
- **Fire station locations do not meet the needs of the community.** When asked about the locations of the fire stations and their locations, 57.1 of Admin/Other Staff and 51.0 percent of Operations Staff disagreed, while 60.0 percent of Prevention Staff were neutral in regard to meeting community needs.
- **Majority of respondents feel the physical condition of CFD fire stations are insufficient.** About 71.4 percent of Admin/Other, 85.7 percent of Operations Staff and 100% of Prevention Staff feel CFD stations are not in good condition.
- **Majority of CFD employees believe that apparatus replacement is not occurring regularly.** About 43 percent of Admin/Other Staff and 59.2 percent of Operations Staff agree, while 40.0 percent of Prevention Staff agreed and 40.0 percent of Prevention Staff disagree CFD is replacing FIRE and EMS apparatus on an appropriate schedule.

(5) Improving Chelsea Fire

In assessing whether there are way to improve the overall strength/opportunities of the agency — we use a question format known as open-ended weighting to identify perceptions that are similar among all groups. Doing so allows us to identify common themes among ALL staff, therefore, offering up an effective approach for improving agency performance.

(5.1) The Most Important Strengths of the Chelsea Fire Department

Those who chose to answer the open-ended questions wrote that the most important strength of the Chelsea Fire Department would be the dedication of the Fire

Staff and their ability to provide to the taxpayers highly qualified staff. Some of the common themes are summarized below:

The Most important Strengths

Dedication of Fire Staff
Highly Qualified Staff
Always Developing Skills Sets
Core values
Diversity
Education
Effective Leadership
Effective Skills Training
Incident Skills and Capabilities
Innovation Among the Staff
Local Union
Youthfulness of the Department

Respondents believe the most important strengths in CFD would be the highly qualified and dedication of staff that are always on top of improving skills, holding to strong core values, and their diversity. Staffs in CFD are highly educated members that are provided with the tools to be effective in their leadership, skills, and capabilities. Among the youthful, innovative staff, lays a well-rounded cadre of people who are back by effective skills training and strong union support.

(5.2) The Most Important Improvement Opportunities Facing the Chelsea Fire Department:

The general consensus of respondents for this question had to do with updating/retaining newer facilities, addressing staffing, health and wellness of employees, increased formal training, and provide a safer work environment. The opportunities are summarized below.

Highest Priority Improvement Opportunities

Updated/Newer Fire Stations
Apparatus Replacement
Health and Wellness Program for Employees
Increased Formal Training
Increased Staffing Levels
Provide a Safer Working Environment

Respondents believe the most important issues to address would be improving fire stations (updating/renovating), replacing apparatus/equipment regularly, implementing a health and wellness program to increase employee morale, increase opportunities for targeted training efforts, augmenting staffing levels to provide a safer working environment for CFD Staff.

4. DATA TABLES

TABLE 3 – SERVICES TO THE COMMUNITY

Question	Role Type								
	Admin/Other			Operations			Prevention		
	% Agr ee	% Disa gree	% Neu tral	% Agr ee	% Disa gree	% Neu tral	% Agr ee	% Disa gree	% Neu tral
1. Our Department Provides high quality fire service to the community.	100.0%	0.0%	0.0%	92.2%	7.8%	0.0%	80.0%	20.0%	0.0%
2. Our Department provides high quality EMS service to the community.	85.7%	0.0%	14.3%	74.5%	13.7%	11.8%	80.0%	0.0%	20.0%
3. Compared to other Fire Departments in the area, Chelsea has high levels of service.	85.7%	14.3%	0.0%	73.5%	16.3%	10.2%	80.0%	20.0%	0.0%
4. The Department provides effective fire prevention services.	85.7%	14.3%	0.0%	79.6%	16.3%	4.1%	80.0%	20.0%	0.0%
5. The Department provides effective public education services.	57.1%	28.6%	14.3%	57.1%	32.7%	10.2%	40.0%	20.0%	40.0%
6. The residents of Chelsea view the Fire Department as a high priority.	42.9%	28.6%	28.6%	42.9%	34.7%	22.4%	40.0%	60.0%	0.0%
7. We provide effective mutual aid to our neighboring fire departments.	85.7%	14.3%	0.0%	95.8%	2.1%	2.1%	80.0%	0.0%	20.0%
8. We receive effective mutual aid from our neighboring fire departments.	71.4%	28.6%	0.0%	89.8%	8.2%	2.0%	80.0%	0.0%	20.0%
9. The contract ambulance provider provides high quality EMS transport services.	57.1%	28.6%	14.3%	34.7%	34.7%	30.6%	40.0%	20.0%	40.0%

TABLE 4 – MANAGEMENT AND ADMINISTRATION

Question	<u>Role Type</u>								
	Admin/Other			Operations			Prevention		
	% Agr ee	% Disa gree	% Neu tral	% Agr ee	% Disa gree	% Neu tral	% Agr ee	% Disa gree	% Neu tral
10. Our Department has a clear vision / direction for the future.	42.9%	14.3%	42.9%	50.0%	24.0%	26.0%	20.0%	40.0%	40.0%
11. I am kept informed of Departmental information.	85.7%	14.3%	0.0%	70.0%	16.0%	14.0%	20.0%	0.0%	80.0%
12. I am able to provide input to my supervisor and management.	71.4%	14.3%	14.3%	68.0%	16.0%	16.0%	40.0%	20.0%	40.0%
13. My work performance expectations are made clear.	57.1%	14.3%	28.6%	73.0%	12.2%	14.3%	60.0%	0.0%	40.0%
14. My opinions are listened to in this Department.	57.1%	28.6%	14.3%	52.0%	18.0%	30.0%	40.0%	20.0%	40.0%
15. When problems or issues arise in the department they are resolved in a timely manner.	71.4%	14.3%	14.3%	50.0%	26.0%	24.0%	40.0%	60.0%	0.0%
16. Staff are held accountable for their actions.	71.4%	28.6%	0.0%	48.0%	26.0%	26.0%	40.0%	20.0%	40.0%
17. Our Department seems to be innovative and progressive.	85.7%	14.3%	0.0%	54.0%	28.0%	18.0%	20.0%	40.0%	40.0%
18. Our Department does a good job planning and scheduling our work assignments each shift.	57.1%	28.6%	14.3%	78.0%	10.0%	12.0%	60.0%	0.0%	40.0%
19. Our policies and procedures are up to date and are consistently followed.	14.3%	14.3%	71.4%	52.0%	24.0%	24.0%	60.0%	40.0%	0.0%
20. I receive the proper training to be effective in my current assignment.	57.1%	28.6%	14.3%	48.0%	40.0%	12.0%	60.0%	40.0%	0.0%

TABLE 5 – ORGANIZATION, STAFFING AND OPERATIONS

				<u>Role Type</u>	
	% Agree	Admin/Other % Disagree	% Neutral	% Agree	Operations % Disagree
rent Fire and EMS needs of the City.	0.0%	85.7%	14.3%	14.0%	76.0%
fety and effectively during incidents.	14.3%	71.4%	14.3%	12.0%	78.0%
t demands for service.	0.0%	71.4%	28.6%	12.0%	80.0%
et community service expectations.	85.7%	0.0%	14.3%	70.8%	4.2%
nnel we have available on each shift through flexible unit assignments.	42.9%	28.6%	28.6%	42.6%	21.3%
ncidents are good.	28.6%	42.9%	28.6%	70.8%	16.7%
nts is accurate and timely.	14.3%	71.4%	14.3%	8.2%	81.6%
alls for service.	71.4%	0.0%	28.6%	93.9%	2.0%
ffective.	42.9%	0.0%	57.1%	53.1%	30.6%
ective.	71.4%	0.0%	28.6%	58.3%	20.8%
tion is adequately disseminated to the community.	42.9%	14.3%	42.9%	41.7%	35.4%
keep all of our skills high.	28.6%	28.6%	42.9%	32.7%	53.1%
quired to be good leaders and trainers.	0.0%	57.1%	42.9%	16.3%	55.1%
ring proper training for field personnel.	28.6%	14.3%	57.1%	46.9%	38.8%
ighly qualified personnel.	57.1%	0.0%	42.9%	63.3%	10.2%

TABLE 6 – EQUIPMENT AND FACILITIES

	<u>Role Type</u>						
	Admin/Other			Operations			
	% Agree	% Disagree	% Neutral	% Agree	% Disagree	% Neutral	%
ed to provide high levels of service.	14.3%	42.9%	42.9%	38.8%	44.9%	16.3%	
hnology (IT) meets the internal needs of the Department.	42.9%	14.3%	42.9%	28.6%	40.8%	30.6%	
well maintained.	85.7%	0.0%	14.3%	77.6%	8.2%	14.3%	
ained.	85.7%	0.0%	14.3%	93.9%	4.1%	2.0%	
are effective in meeting community needs.	28.6%	57.1%	14.3%	28.6%	51.0%	20.4%	
e stations is good.	0.0%	71.4%	28.6%	8.2%	85.7%	6.1%	
MS apparatus on an appropriate schedule.	14.3%	42.9%	42.9%	14.3%	59.2%	26.5%	

APPENDIX C: COMPARATIVE SURVEY OF THE FIRE DEPARTMENT

The project team contacted six (6) cities for comparison of fire services to the City of Chelsea. Three (3) communities responded, representing a 50% participation rate. Descriptive information was collected through an Internet survey, Internet search, and documents provided by the City of Chelsea.

Comparison communities had at least one of the following criteria in common with the City of Chelsea:

- High population density,
- High levels of older multi-family housing stock
- High concentration of hazardous materials risks.

Each comparison city operates a municipal fire rescue department providing similar services as CFD.

Question/City	Chelsea	Berwyn, IL	Hoboken, NJ	Salem, MA
Population Served	35,177	56, 560	50,005	42,000
Square Miles Served	1.8	3.9	1.2	8
Number of Stations	3	3	4	4
FY 2011 FD Budget	\$7,831,472	\$10,241,270	\$16,000,000	\$6,800,000
% of City Budget Allocated to FD	6.4%	27%	7%	7%
Apparatus staffed Daily	Ladder/Tower Engines	Ladder Engines Rescue	Ladder Engines Rescue Specialty	Ladder Engines Rescue Specialty
Minimum Staffing Levels	Ladder/Tower (3) Engines (3)	Engine (3) Ladder (4) Rescue (2) Quint (4)	Engine (3) Ladder (2) Rescue (1) Specialty (2)	Engine (3) Ladder (3)

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Question/City	Chelsea	Berwyn, IL	Hoboken, NJ	Salem, MA
Staffing by Position	Chief (1) Assistant Chief (0) Deputy Chief (6) Battalion Chief (0) Captain (12) Lieutenant (12) Driver/Operator (0) Firefighter (56) Office Manager (1) Mechanic (1)	Chief (1) Assistant Chief (1) Deputy Chief (4) Battalion Chief (1) Captain (1) Lieutenant (12) Driver/Operator (12) Firefighter (60) Inspector (1) Admin Assist (1)	Chief (1) Assistant Chief (0) Deputy Chief (0) Battalion Chief (7) Captain (32) Lieutenant (0) Driver/Operator (0) Firefighter (68) Inspector (4) Other (10)	Chief (1) Assistant Chief (0) Deputy Chief (4) Battalion Chief (0) Captain (9) Lieutenant (16) Driver/Operator (0) Firefighter (55) Inspector (0) Other (0)
Extra Compensation for Shift Differential?	Yes	No	No	Yes
Extra Compensation for Hazardous Duty Assignment?	Yes	No	No	No
Extra Compensation for Haz-Mat Response?	Yes	Yes	No	No
Incentive Pay for Training and Education?	Yes	Yes	No	Yes
Additional Pay for Moving Stations to Cover Staffing?	Yes	Yes	Yes	No
Positions Outside Fire Union?	Chief	Chief, Assistant Chief Deputy Chiefs Battalion Chief	Chief	None
Number of On-duty Injuries Resulting in Lost Time (5 years)	Unknown	7	25	No Response
Written Risk Management Plan?	No	No	Yes	No
Formal Health and Safety Program?	No	Yes	No	No
Annual Health and Wellness Physicals?	No	Yes	No	No
Annual Performance Appraisals?	No	Yes	No	No

CITY OF CHELSEA, MASSACHUSETTS
Performance and Management Study of the Fire Department

Question/Department	Chelsea	Berwyn, IL	Hoboken, NJ	Salem, MA
Facility Maintenance Provided?	City Provides Service	Contract Service	City Provides Service	Contract Service
Fleet Maintenance Provided?	Department Mechanic	Outsourced	City Mechanic	Department Mechanic
Level of EMS Service Provided?	First Responder BLS	First Responder ALS	None	First Responder BLS
Initial Response to Residential Structure Fire	Box Alarm	17 Personnel	19 Personnel	15 Personnel
Initial Response to Multi-Family Residential Structure Fire	Box Alarm	17 Personnel	19 Personnel	15 Personnel
Initial Response to Commercial Structure Fire	Box Alarm	17 Personnel	19 Personnel	15 Personnel
How Often Mutual Aid was Utilized in 2011?	Not Captured	689	5	45
How Often Mutual Aid Provided in 2011?	212	496	53	43
How Many Working Fires in 2011?	Unknown	140	187	No Response
How Many EMS Calls in 2011?	5,677	5,822	58	No Response
Total Calls for Service in 2011?	10,797	6,623	3,645	6,900
Total Calls for Busiest Unit in 2011?	4,269	835	2,003	No Response
Mutual Aid Required for Initial Response?	No	Yes	No	Yes
How is Dispatch Provided?	Third City Service	Police Department	Third City Service	Fire Department
Established Dispatch Performance Measures?	No	Yes EMD & EMD Power Phone	No	Yes Standard Operating Guidelines
How is EMD provided?	Third Party	Police PSAP	Third Party	Third Party
Training Requirements for Promotion?	No	Yes	Yes	No

CITY OF CHELSEA, MASSACHUSETTS
Performance and Management Study of the Fire Department

Question/Department	Chelsea	Berwyn, IL	Hoboken, NJ	Salem, MA
Registration for Professional Development Courses Paid by Department?	No	Yes	Yes	No
Post Incident Analysis used by Training Staff?	No	Yes	Yes	Yes
Agency requires Paid Details at Homes/Businesses?	Yes	No	Yes	Yes
When are Details Required?	FD Determines	N/A	Suppression Systems Out of Service	Cutting, Welding, Blasting or Sprinklers Out of Service
Shift Personnel Conduct Company Inspections?	Yes	Yes	No	Yes
Any Portion of Plan Review Outsourced?	No	Yes	No	No
Fire Prevention Personnel Formally Trained in Fire Codes and Plan Review Process?	No	Yes	Yes	No

Of the participating cities the responses varied greatly as to which services were provided and how various services were accomplished. The per capita budgets varied from a low of \$161.90 in Salem, MA to a high of \$319.97 in Hoboken, NJ. Chelsea has a per capita budget of \$222.63 for fire services. Chelsea Engine 2 was bar far the busiest unit in the comparative survey, responding to over 4,000 incidents annually. The next busiest unit was from Hoboken at just over 2,000 incident responses annually. Also, CFD is the only agency from the group to not utilize formal post-incident analysis as part of the training program.

APPENDIX D: BEST PRACTICES ASSESSMENT

As part of the Matrix Consulting Group's Performance Audit of the Chelsea Fire Department (CFD), the project team conducted a "best practices assessment" to identify issues associated with overall operations, organization, and management. This was conducted by comparing / measuring the current service levels of the CFD with national fire and EMS performance objectives, as well as to a number of "best practices" developed by the Matrix Consulting Group resulting from our extensive experience working with fire and EMS delivery agencies throughout the country. In general, this assessment was conducted for the following areas:

- Department Administration
- Training and Staff Development
- Fire Apparatus/Equipment and Operations
- Fire and Emergency Operations
- Fire Prevention and Inspections

This **draft / preliminary** best management practices assessment will be reviewed with the City before being finalized and used to develop the analysis which will be contained in the final report.

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
DEPARTMENT ADMINISTRATION Organization	The FD shall prepare and maintain a written statement or policy that establishes the existence of the FD, the services the FD is authorized and expected to perform, and the basic organization structure.	MEETS: Part III Section 16, Fire Department, of the ADMINISTRATIVE CODE of the City of Chelsea, MA establishes and illustrates the existence and roles of the Chelsea Fire Department (CFD).

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
<p>DEPARTMENT ADMINISTRATION</p> <p>Organization</p>	<p>The FD shall prepare and maintain written policies and SOPs that document the organization structure, membership, roles and responsibilities, expected functions, and training requirements, including the following:</p> <ul style="list-style-type: none"> • The types of standard evolutions that are to be expected to be performed simultaneously or in sequence for different types of situations • The minimum number of members who are required to perform each function or evolution and the manner in which the function is to be performed • The number and types of apparatus and the number of personnel that will be dispatched to different types of incidents • The procedures that will be employed to initiate and manage operations at the scene of an emergency incident 	<p>MEETS: The Department has formal policies and procedures, including Operational SOPs and EMS Protocol.</p>
<p>DEPARTMENT ADMINISTRATION</p> <p>Planning</p>	<p>The agency periodically analyzes the community by service area / population density for the purpose of developing total response time standards.</p>	<p>BELOW STANDARD: The CFD does not conduct periodic analysis of the community to develop response time standards.</p>
<p>DEPARTMENT ADMINISTRATION</p> <p>Risk Assessment</p>	<p>The agency utilizes a formal process to periodically assess the balance between fire suppression capabilities and the fire risks present in the community. Imbalances identified are addressed departmental planning efforts.</p>	<p>BELOW STANDARD: There is no periodic assessment of how fire suppression capabilities align with community risks.</p>

CITY OF CHELSEA, MASSACHUSETTS
Performance and Management Study of the Fire Department

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
DEPARTMENT ADMINISTRATION Management & Supervision	The management team has frequent formal and informal interaction focused on addressing issues and on furthering the goals and objectives of the Fire Department.	BELOW STANDARD: The CFD Management Team has routine informal meetings addressing issues of department concern. However, the Department does not have formal strategic goals and objectives to follow.
DEPARTMENT ADMINISTRATION Management & Supervision	The Department has a management accountability system that identifies group performance goals as well as individual goals for officers and staff.	BELOW STANDARD: The CFD does not use Management Accountability for group performance and does not conduct individual performance evaluations.
DEPARTMENT ADMINISTRATION Management & Supervision	Deputy Chiefs hold regular meetings with their subordinate staff to review specific and on-going issues.	BELOW STANDARD: Based on station interviews there is no formal or consistent exchange of information from Deputy Chiefs. Station level communications is through written email, or hearsay.
DEPARTMENT ADMINISTRATION Management & Supervision	Policies and procedures are reviewed regularly and are updated accordingly.	BELOW STANDARD: There is no established schedule for the review and updating of agency policies and procedures.
DEPARTMENT ADMINISTRATION Management & Supervision	Creation of policies and procedures is automated so that updates are done rapidly but securely.	MEETS: Policies and procedures are maintained in the IMC system electronically and provided to all new employees in 3-ring binders.
DEPARTMENT ADMINISTRATION Management & Supervision	The organization has grouped like functions together to support the organizational mission and goals.	BELOW STANDARD: Several functions are performed by personnel outside of the expected functional area of responsibility.
DEPARTMENT ADMINISTRATION Management & Supervision	The organizational structure supports equivalent spans of control for similar levels of management.	BELOW STANDARD: Organizational structure and span of control differ throughout the organization.

CITY OF CHELSEA, MASSACHUSETTS
Performance and Management Study of the Fire Department

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
DEPARTMENT ADMINISTRATION Management & Supervision	Personnel of like rank have similar levels of responsibility.	BELOW STANDARD: Department's organization operates under a Para-military structure, but responsibility is not necessarily similar at each rank.
DEPARTMENT ADMINISTRATION Management & Supervision	The organizational structure supports goals of one manager per function and ensures that staff report to a single manager.	MEETS: Department's organization operates under a Para-military structure that ensures staff report to a single manager.
DEPARTMENT ADMINISTRATION Management & Supervision	The Department has a public education program.	BELOW STANDARD: CFD has a minimal Public Education program with no funding other than what can be obtained from grants.
DEPARTMENT ADMINISTRATION Management & Supervision	The City has a media relations training for key managers in the Fire Department.	BELOW STANDARD: CFD does not conduct media relations training for key personnel in the Fire Department.
DEPARTMENT ADMINISTRATION Management & Supervision	Existence of automated fleet management system to monitor equipment utilization and repair histories, labor distribution, downtime, costs, preventive maintenance scheduling, etc.	MEETS: The CFD mechanic use automation to monitor, schedule, repair, and evaluate department's rolling stock. CFD has assigned responsibility to shift commanders for tracking for all non-rolling stock equipment including Self-Contained Breathing Apparatus (SCBA) and other personal protective equipment.
DEPARTMENT ADMINISTRATION Management & Supervision	Automatic and mutual aid agreements are in place to ensure that sufficient resources are available to handle rare but intensive response such as structure fires.	MEETS: CFD is part of the METROFIRE Mutual Aid Agreement, which includes 34 jurisdictions in the Boston area for the provision of fire, rescue, ambulance and other emergency service assistance.

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
DEPARTMENT ADMINISTRATION Risk Management Plan	The Fire Department shall develop and adopt a comprehensive, written risk management plan.	BELOW STANDARD: CFD currently does not have a written risk management plan.
DEPARTMENT ADMINISTRATION Risk Management Plan	The Risk Management Plan shall cover at least the risks associated with the following: <ol style="list-style-type: none"> 1. Administration 2. Facilities 3. Training 4. Vehicle operations, both emergency and non emergency 5. PPE 6. Operations at emergency and non emergency incidents 7. Other related activities 	BELOW STANDARD: CFD currently does not have a written risk management plan.
DEPARTMENT ADMINISTRATION Safety and Health Policy	The FD shall adopt an official written departmental occupations safety and health policy that identifies specific goals and objectives for the prevention and elimination of accidents and occupational injuries	BELOW STANDARD: The Department does not have an established occupational safety and health policy that includes goals and objectives for prevention and elimination of employee involved accidents and injury.
DEPARTMENT ADMINISTRATION Safety And Health Policy	The FD shall evaluate the effectiveness of the occupational safety and health program at least once every 3 years.	BELOW STANDARD: CFD does not evaluate the effectiveness of health and safety programs.
DEPARTMENT ADMINISTRATION Roles and Responsibilities	The FD shall be responsible for developing and implementing an accident investigation procedure.	MEETS: Accident investigation procedures are well documented. Chelsea PD serves as the investigator with CFD providing support.

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
<p>DEPARTMENT ADMINISTRATION</p> <p>Occupational Safety and Health Committee</p>	<p>An occupational safety and health committee shall be established and shall serve the fire chief in an advisory committee</p> <p>The committee shall include the following members:</p> <p>The designated fire department health and safety officer</p> <p>Representatives of fire department management</p> <p>Individual members or representatives of member organizations</p> <p>Regular meetings shall be held at least once every 6 months</p>	<p>BELOW STANDARD: CFD does not have an occupational safety and health committee. The Training Officer is the designated health and safety officer.</p> <p>The Union does have a Health and Safety Committee to bring safety concerns to the Department.</p>
<p>DEPARTMENT ADMINISTRATION</p> <p>Records</p>	<p>The fire department shall establish a data collection system and maintain permanent records of all accidents, injuries, illnesses, exposures to infectious agents and communicable diseases, or deaths that are job related</p> <p>The data collection system shall also maintain individual records of any occupational exposure to known or suspected toxic products or infectious communicable diseases</p>	<p>MEETS: The Department maintains hardcopy files for injuries including accident logs, worker compensation claims, accidents, hazardous material, and Bloodborne Pathogens exposures.</p>
<p>DEPARTMENT ADMINISTRATION</p> <p>Records</p>	<p>The FD shall maintain training records for each member indicating dates, subjects covered, satisfactory completion, and if any, certifications achieved.</p>	<p>MEETS: The CFD Training Captain maintains training and certification records for all sworn personnel in the Department.</p>
<p>DEPARTMENT ADMINISTRATION</p> <p>Appointment of the Health and Safety Officer</p>	<p>The fire chief shall appoint a designated fire department health and safety officer.</p> <p>NIMS Compliance (at incidents)</p>	<p>MINIMALLY MEETS: The Training Captain serves as the department Safety Officer at incidents, but only between the hours of 8a – 4p.</p>

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	The training officer creates monthly and weekly training schedules.	MEETS: The CFD Training Captain develops monthly training schedules for company level training, specialized training, CMEs, and other types of training.
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	Station officers are expected to develop expertise and course outlines and teach several IFSTA, NFPA or other training modules.	BELOW STANDARD: The CFD does not require that company officers develop training outlines and teach IFSTA, NFPA and other training modules.
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	Chief officers are expected to develop expertise and course outlines and teach several Fire Officer training modules.	BELOW STANDARD: The CFD does not require that Chief Officers develop expertise and prepare course outlines and training modules.
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	The department budgets for and takes advantage of regional training opportunities.	BELOW STANDARD: The CFD budgets minimal funds for personnel to attend outside training courses. Regional training groups exist for Hazardous Materials, Technical Rescue, and professional development, but staff typically attends on their own time.
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	The department conducts a periodic training needs assessment to determine what training to offer.	BELOW STANDARD: The CFD does not conduct training needs assessments or involve the training captain in post-incident critiques to allow opportunities for training to be identified.
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	The Department closely monitors EMS recertification requirements.	MEETS: EMS training requirements are met through a training agreement with the private ambulance provider.

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>The FD shall establish and maintain a training, education and professional development program with a goal of preventing occupational deaths, injuries and illnesses.</p>	<p>BELOW STANDARD: While the Training Captain is the designated health and safety officer, there is no training, education and professional development program focused on preventing occupational injuries and deaths.</p>
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>The FD shall establish training and education programs that provide new members initial training, proficiency opportunities, and a method of skill and knowledge evaluation for duties assigned to the member prior to engaging in emergency operations.</p>	<p>MEETS: The CFD has a training program that establishes requirements for knowledge and proficiency for new firefighters.</p>
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>The FD shall restrict the activities of new members during emergency operations until the member has demonstrated the skills and abilities to complete the tasks expected.</p>	<p>BELOW STANDARD: The CFD does not restrict the activities of all probationary firefighters until they demonstrate proficiency in required skills, but immediately assigns them to apparatus.</p>
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>The FD shall provide all members with training and education on the Department's risk management plan.</p>	<p>BELOW STANDARD: The CFD does not have a written risk management plan.</p>
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>The fire department shall provide all members with training and education on the department's written procedures.</p>	<p>MEETS: The CFD provides all members with training on the department's written procedures.</p>
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>The fire department shall provide all members with a training, education and professional development program commensurate with the emergency medical services that are provided by the department.</p>	<p>MEETS: All continuing medical education and recertification training is provided by the private ambulance provider as part of the EMS transport agreement.</p>

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>The fire department shall provide all members with a training and education program that covers the operation, limitation, maintenance, and retirement criteria for all assigned PPE expected to be utilized by members.</p>	<p>MEETS: The CFD provides staff with training and education regarding the use, maintenance, and retirement for all PPE.</p>
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>As a duty function members shall be responsible to maintain proficiency in their skills and knowledge, and to avail themselves of the professional development provided to the members through department training and education programs.</p>	<p>MEETS: The CFD requires that all personnel perform regular training programs including daily training, company skills assessments, continuing medical education, and other skills and knowledge.</p>
TRAINING, EDUCATION AND DEVELOPMENT General Requirements	<p>All members who are likely to be involved in emergency operations shall be trained in the incident management and accountability system used by the fire department.</p>	<p>MEETS: The CFD trains all emergency operations personnel in the incident management and accountability system.</p>
TRAINING, EDUCATION AND DEVELOPMENT Member Qualifications	<p>All members who engage in structural fire fighting shall meet the requirements of NFPA 1001. (Standard for Fire Fighter Professional Qualifications) .</p>	<p>MEETS: The CFD requires that all personnel have successfully completed state firefighter certification requirements.</p>
TRAINING, EDUCATION AND DEVELOPMENT Member Qualifications	<p>All driver/operators shall meet the requirements of NFPA 1002. (Standard for Fire Apparatus Driver/Operator Professional Qualifications)</p>	<p>MEETS: The CFD utilizes standards for Fire Apparatus / Operator consistent with NFPA 1002. The Department also utilizes separate tests and certifications for engines and truck companies. Initial EVOC course was 16 hours exceeding requirements of NFPA 1002.</p>
TRAINING, EDUCATION AND DEVELOPMENT Member Qualifications	<p>All fire officers shall meet the requirements of NFPA 1021. (Standard for Fire Officer Professional Qualifications).</p>	<p>BELOW STANDARD: The Department has no requirements for officers meeting NFPA 1021.</p>

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
TRAINING, EDUCATION AND DEVELOPMENT Special Operations Training	Members expected to perform hazardous materials mitigation activities shall meet the training requirements of a technician as outlined in NFPA 472.	BELOW TARGET: The CFD is a member of one of the six Statewide Haz Mat teams currently in place; however, interviews indicate that service levels and training are below desired levels. In fact the Haz-Mat Captain is not currently trained to the Technician level.
FIRE APPARATUS, EQUIPMENT AND DRIVERS/OPERATORS Drivers/Operators of FD Apparatus	Fire apparatus shall be operated only by members who have successfully completed an approved driver-training program commensurate with the type of apparatus the member will operate or by trainee drivers who are under supervision of a qualified driver.	MEETS: The CFD requires that all apparatus operators are instructed and checked off by a company officer prior to driving agency apparatus.
FIRE APPARATUS, EQUIPMENT AND DRIVERS/OPERATORS Inspection, Maintenance & Repair	A preventive maintenance program shall be established, and records shall be maintained.	MEETS: The CFD mechanic meets recordkeeping objectives and is Emergency Vehicle Technician certified.
FIRE APPARATUS, EQUIPMENT AND DRIVERS/OPERATORS Inspection, Maintenance & Repair	Inspection, maintenance, and repair of fire apparatus shall be conducted in accordance with NFPA 1911 (Standard for Inspection, Maintenance, Testing and Retirement of Fire Apparatus)	MEETS: NFPA 1911 is the standard used by Fleet Maintenance and station personnel for inspection, maintenance, and repair of fire apparatus.
FIRE APPARATUS, EQUIPMENT AND DRIVERS/OPERATORS Inspection, Maintenance & Repair	All repairs to fire department apparatus shall be performed by personnel meeting the requirements of NFPA 1071 (Standard for Emergency Vehicle Technician Professional Qualifications) or personnel trained to meet the requirements identified by the manufacturers in their specifications and procedures for fire department vehicles and PPE.	MEETS: All mechanics performing work on CFD fire apparatus are Emergency Vehicle Technician certified.

CITY OF CHELSEA, MASSACHUSETTS
Performance and Management Study of the Fire Department

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
FIRE APPARATUS, EQUIPMENT AND DRIVERS/OPERATORS Inspection, Maintenance & Repair	Fire pumps on apparatus shall be service tested in accordance with the applicable requirements of NFPA 1911 (Standard for Service Tests of Fire Pump Systems on Fire Apparatus).	MEETS: Fire pumps are tested using NFPA 1911 specification.
FIRE APPARATUS, EQUIPMENT AND DRIVERS/OPERATORS Inspection, Maintenance & Repair	All aerial devices shall be inspected and service tested in accordance with the applicable requirements of NFPA 1914 (Standard for Testing Fire Department Aerial Devices).	MEETS: City aerial apparatus are tested under NFPA 1914 standards.
EMERGENCY OPERATIONS Incident Management	The agency utilizes a standardized incident management system such as NFPA 1561 (Standard on Emergency Services Incident Management System).	MEETS: CFD has established SOPs documenting use of Incident Command System (ICS) with commensurate ICS training for department personnel.
EMERGENCY OPERATIONS Incident Management	The incident management system shall be utilized at all emergency incidents.	MEETS: ICS is exercised on all fire rescue related incidents, including vehicle crashes.
EMERGENCY OPERATIONS Incident Management	The incident management system shall be applied to drills, exercises, and other situations that involve hazards similar to those encountered at actual emergency incidents and to simulated incidents that are conducted for training and familiarization processes.	BELOW STANDARD: CFD uniformly employs Incident Command on all training situations.
EMERGENCY OPERATIONS Communications	The fire department standard operating procedures shall provide direction in the use of clear text radio messages for emergency incidents.	MEETS: Department communication protocol is clear text (plain talk) radio messaging.
EMERGENCY OPERATIONS Communications	Priority 1 calls for service are dispatched within 1-minute at the 90 th percentile on a fractile basis.	BELOW STANDARD: Review of CAD data shows priority one calls are dispatched in 3 minutes 20 seconds at the 90 th %. Well below expected performance standards.

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
EMERGENCY OPERATIONS Personnel Accountability During Emergency Operations	The fire department shall develop, implement, and utilize the system components required to make the personnel accountability system effective.	MEETS: THE CFD utilizes a personnel accountability system as part of its response policies and incident command system.
EMERGENCY OPERATIONS Rapid Intervention for Rescue of Members	A rapid intervention team / company (RIT) shall consist of at least two members and shall be available for rescue of a member or a crew.	MEETS: The CFD uses a RIT consisting of two firefighters for structure fire responses when an interior attack is utilized, but relies on mutual aid to establish the team.
EMERGENCY OPERATIONS Rehabilitation During Emergency Operations	The fire department shall develop standard operating procedures that outline a systematic approach for the rehabilitation of members operating at incidents.	BELOW STANDARD: The CFD is in the process of developing and implementing a policy, which includes rehabilitation of personnel at incidents.
FACILITY SAFETY Safety Standards	Fire departments shall provide facilities for disinfecting, cleaning, and storage in accordance with NFPA 1581, Standard on Fire Department Infection Control Program.	MEETS: Each station has adequate supplies of disinfecting and cleaning solution for internal infection control practices. Storage meets industry standard.
EMERGENCY OPERATIONS Post Incident Analysis	The fire department shall establish requirements and standard operating procedures for a standardized post-incident analysis of significant incidents or those that involve serious injury or death to a fire fighter.	MEETS: Department policies include required post-incident analysis for significant operational events.
FIRE OPERATIONS Response Time	Stations are located to yield response time targets of four minutes, but not to exceed 5:12 for the first responding unit for emergency fire and medical calls with a fractile target of 90%.	MEETS: Analysis of response time data indicate that the CFD achieved a drive time (unit en-route to on-scene) of 2 minutes 12 seconds to 90% or more of emergency calls for service. With the "turnout" time of 2:54, overall response time (5:14) is well within the maximum expected response time of 6:42 for an urban agency.

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
FIRE OPERATIONS Response Time	The Department has a 1-minute 30 seconds maximum "turnout" time goal with a fracture target of 90%. Reflex time is the time between the receipt of the dispatch and the time that the unit(s) is moving to respond or is en-route.	BELOW STANDARD: CFD does not have a "turnout" time goal established for determining the performance of personnel getting en-route to emergency calls. Review of CAD records for 2011 indicates a turnout time at the 90 th percentile of 2:54, well above the 1:30 baseline performance expectation.
FIRE OPERATIONS Response Time	The Department monitors and reports turnout times for each fire company monthly.	BELOW STANDARD: The CFD does not regularly monitor reflex times for each fire company monthly.
FIRE OPERATIONS Response Time	The Department monitors and reports on travel time performance for each fire company monthly.	BELOW STANDARD: The current reporting of response time includes both turnout and travel time in whole minutes.
FIRE OPERATIONS Suppression	The Department has a 3-person minimum staffing requirement for both engine and aerial operations.	MEETS: The CFD utilizes 3-person staffing for both engine and aerial operations.
FIRE OPERATIONS Suppression	Suppression crews are actively involved in community smoke detector and CO detector awareness and inspection programs.	BELOW STANDARD: There is no proactive community smoke detector and CO awareness programs in Chelsea.
FIRE OPERATIONS Suppression	The Department has developed a comprehensive risk assessment and inventory information system that quantifies fire risk or hazards for planning purposes.	BELOW STANDARD: The CFD has not developed a comprehensive risk assessment including a Standards of Coverage document for planning responses and publicly stating capabilities for responding to fire risks and hazards in the community.

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
MEDICAL AND PHYSICAL REQUIREMENTS Health and Fitness	<p>The fire department shall establish and provide a health and fitness program that meets the requirements of NFPA 1583, Standard on Health-Related Fitness Programs for Fire Fighters, to enable members to develop and maintain a level of fitness that allows them to safely perform their assigned functions.</p>	<p>BELOW STANDARD: The department provides physical fitness equipment at each station, but does not require fitness or wellness standards. The department does not have a Fitness for Duty program where annual testing is performed on each person eligible to participate on the fire ground to meet minimum physical measures for health and fitness.</p>
FIRE PREVENTION Administration	<p>The jurisdiction has adopted a certified fire code.</p>	<p>MEETS: CFD uses 527 cmr Fire Prevention Code and Massachusetts general law chapter 148.</p>
FIRE PREVENTION Administration	<p>The jurisdiction has ordinances requiring built-in protection for high-risk occupancies.</p>	<p>MEETS: Chelsea has adopted NFPA 13-d and 13-r, which requires residential sprinklers on multi-housing of 3 family and above.</p>
FIRE PREVENTION Administration	<p>The Department has a dedicated staff of plan reviewers and inspectors.</p>	<p>BELOW STANDARD: The Deputy Chief of Fire Prevention reviews plans, but has no formal training in plan review. A single Lieutenant inspector, who is also not a certified fire inspector, conducts inspections in the City.</p>
FIRE PREVENTION Administration	<p>Fire Prevention personnel check site plans, fire protection system plans and specifications, and building permit plans for compliance with the Uniform Fire Code or NFPA Code.</p>	<p>MEETS: The Deputy Chief applies NFPA and Uniform Fire Codes in the review of site plans, fire protective systems, and permit plans.</p>
FIRE PREVENTION Administration	<p>Plan checks in the Fire Department are conducted concurrently with those performed by other participants in the plan check process.</p>	<p>MEETS: Plan checks are reviewed concurrently with building department along with other City department's involved in the review process.</p>

STANDARD	MEASURES TO MEET STANDARD	FINDINGS
FIRE PREVENTION Inspection	Fire prevention identifies high-risk facilities and supports suppression personnel in conducting in-service inspections and pre-fire plans.	BELOW STANDARD: Prevention activities include high-risk facilities identification, but there is currently no pre-fire planning occurring in CFD.
FIRE PREVENTION Education	Specific programs are in place to deal with juvenile fire setters.	MEETS: Juvenile Fire Setters Program by the Greater Lynn Fire Safety School. CFD requests a hearing at Chelsea District Court to get children into program (Court Ordered).
FIRE PREVENTION Investigations	Company officers are trained to handle basic cause and origin determinations, including skills to determine when an arson investigator should be called on.	MEETS: Company officers perform basic cause and origin determinations. If the determination is of suspicious nature, Fire Prevention Captain/Arson Investigator is contacted.
FIRE PREVENTION Investigations	Fire and Police Departments have specific individuals assigned to serve as liaisons for handling arson cases when there is a criminal component.	MEETS: CFD works with Chelsea Police in the criminal conviction of suspected arson cases.